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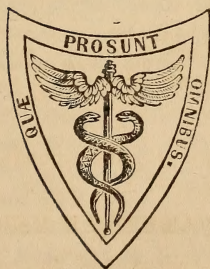
THE  
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OF THE  
MEDICAL SCIENCES.

EDITED BY  
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FELLOW OF THE PHILADELPHIA COLLEGE OF PHYSICIANS; MEMBER OF THE  
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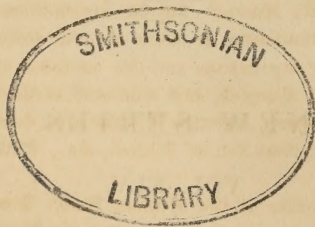
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## TO READERS AND CORRESPONDENTS.

The following works have been received:—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. 2d series. Vol. XXVII. London, 1862. (From the Society.)

A System of Surgery, Theoretical and Practical, in treatises by various authors. Edited by F. HOLMES, M. A. Cantab., Assistant Surgeon to St. George's Hospital, &c. In four volumes. Vol. III. Operative Surgery; Diseases of the Organs of Special Sense, Respiration, Circulation, Locomotion, and Innervation. London: Parker, Son & Bourn, 1862. (From the Editor.)

The Renewal of Life: Clinical Lectures illustrative of the Restorative System of Medicine, given at St. Mary's Hospital. By THOMAS K. CHAMBERS, M. D., F. R. C. P., Physician to St. Mary's Hospital, &c. &c. London: John Churchill, 1862. (From the Author.)

Addresses delivered by Dr. BURROWS, Dr. WALSH, Mr. PAGET, and Dr. SHARPEY, at the thirtieth annual meeting of the British Medical Association held at the Royal College of Physicians, London, in 1862. London, 1862.

Medical Communications of the Massachusetts Medical Society. Vol. X., No. 2, 1862. 2d series. Vol. VI., Pt. 2. Boston, 1862.

Bulletin of the New York Academy of Medicine. Vol. I. Nos. 20 to 37, inclusive. The first 19 Nos. have not been received.

The Hospital Steward's Manual: for the instruction of Hospital Stewards, Ward Masters, and Attendants; in their several duties. Prepared in strict accordance with existing regulations and the customs of service in the armies of the United States of America, and rendered authoritative by order of the Surgeon General. By JOSEPH JANVIER WOODWARD, Assistant Surgeon U. S. A., Member of the Acad. of Nat. Sci. of Philad., &c. Philadelphia, J. B. Lippincott & Co., 1862.

Anatomy of the Arteries of the Human Body, Descriptive and Surgical, with the Descriptive Anatomy of the Heart. By JOHN HATCH POWER, M. D., F. R. C. S., Professor of Descriptive and Practical Anatomy in Royal College of Surgeons, &c. Philadelphia: J. B. Lippincott & Co., 1862.

The Institutes of Medicine. By MARTYN PAINE, A. M., M. D., LL. D., Professor of the Institutes of Medicine and Materia Medica in University, city of New York. Seventh edition. New York, 1862. (From the Author.)

The Physician's Handbook of Practice for 1863. By WM. ELMER, M. D. New York: W. A. Townsend, 1862.

Dentition and its Derangements. A Course of Lectures delivered in the New York Medical College. By A. JACOBI, M. D., Professor of Infantile Pathology and Therapeutics, &c. New York: Baillière Brothers, 1862.

A few Remarks on the Primary Treatment of Wounds received in Battle: a Report to the Surgeon-General of Massachusetts. By GEORGE H. GAY, M. D., Surgeon to the Massachusetts General Hospital. Boston: David Clapp, 1862. (From the Author.)

On Medical Provision for Railroads, as a Humanitarian Measure, as well as a source of Economy to the Companies. By EDMUND S. F. ARNOLD, M. D., &c. New York: Baillière Brothers, 1862.

Medicine a Science. An Address delivered before the Medical Class of the University of Vermont, June 9, 1862. By CHARLES L. ALLEN, M. D. Burlington, 1862. (From the Author.)

Introductory Address to the Course of Medical Lectures, at Georgetown College, November 3, 1862. By SILAS L. LOOMIS, M. D., Professor of Physics and Chemistry. Washington, 1862.

Lecture on the Medical History of the Philadelphia Almshouse. Delivered at the opening of the Clinical Lectures, October 15, 1862. By D. HAYES AGNEW, M. D. Published by request of the Board of Guardians. Philadelphia, 1862. (From the Author.)

Catalogue of the Trustees, Overseers, Faculty, and Students of the Berkshire Medical Institution for the year 1862, and of the Graduates and Honorary Graduates since its incorporation in 1823. Pittsfield, Mass., Oct. 1862.

The following Journals have been received in exchange:—

*Annales Médico-Psychologiques.* Rédigé par MM. les Docteurs BAILLARGER, CERISE, et MOREAU (de Tours). July, 1862.

*Gazette Médicale de Paris.* Rédacteur en chef, JULES GUÉRIN. Nos. 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43. 1862.

*Gazette Hebdomadaire de Médecine et de Chirurgie.* Rédacteur en chef, A. DECHAMBRE. Nos. 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43. 1862.

*Journal de Médecine de Bordeaux.* Rédacteur en chef, M. COSTES. April, May, June, July, August, 1862.

*The Dublin Quarterly Journal of Medical Science.* August, November, 1862.

*Edinburgh Medical Journal.* August, September, October, November, December, 1862.

*The British and Foreign Medico-Chirurgical Review.* October, 1862.

*The Medical Critic and Psychological Journal.* Edited by FORBES WINSLOW, M. D. October, 1862.

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*Glasgow Medical Journal.* October, 1862.

*The London Medical Review.* August, September, October, November, 1862.

*British Medical Journal; being the Journal of the British Medical Association.* February, March, April, May, June, July, August, September, October, November, 1862.

*The Stethoscope; a Quarterly Review of the Modern Practice in Consumption and Chest Diseases.* October, 1862.

*The Madras Quarterly Journal of Medical Science.* July, 1862.

*The British American Journal.* Edited by ARCHIBALD HALL, M. D. September, October, November, 1862.

*The Boston Medical and Surgical Journal.* Edited by SAMUEL L. ABBOT, M. D. October, November, December, 1862.

*American Medical Times.* October, November, December, 1862.

*The Cincinnati Lancet and Observer.* Edited by EDWARD B. STEVENS, M. D., and JOHN A. MURPHY, M. D. October, December, 1862.

The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. October, 1862.

The Chicago Medical Journal. Edited by DANIEL BRAINARD, M. D., and J. A. ALLEN, M. D. October, November, December, 1862.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D. September, October, 1862.

The Medical and Surgical Reporter. Edited by S. W. BUTLER, M. D., and R. J. LEVIS, M. D. October, November, 1862.

American Medical Monthly. Edited by J. H. DOUGLAS, M. D. September, October, 1862.

Buffalo Medical and Surgical Journal. Edited by JULIUS F. MINER, M. D. October, December, 1862.

The Pacific Medical and Surgical Journal. Edited by JAMES BLAKE, M. D. August, 1862.

The San Francisco Medical Press. Edited by L. C. LANE, M. D. October, 1862.

The Cincinnati Medical and Surgical News. Edited by Drs. A. H. BAKER and J. A. THACKER. September, October, 1862.

American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by WM. PROCTOR, Jr., Professor of Pharmacy. November, 1862.

The Dental Cosmos. Edited by J. D. WHITE, D. D. S., J. H. McQUILLAN, D. D. S., and GEO. J. ZEIGLER, M. D. October, November, December, 1862.


The American Druggists' Circular and Chemical Gazette. October, November, December, 1862.

The American Journal of Science and Art. Edited by Profs. B. SILLIMAN and B. SILLIMAN, Jr., and JAS. D. DANA. November, 1862.

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- XXVI. Pathological and Practical Observations on Diseases of the Abdomen, comprising those of the Stomach and other parts of the Alimentary Canal, Oesophagus, Cæcum, Intestines, and Peritoneum. By S. O. Habershon, M. D., Lond., F. R. C. P., Senior Assistant Physician to Guy's Hospital, &c. &c. Second-edition, considerably enlarged and revised. London: John Churchill, 1862. 8vo. pp. 594. . . . . 174
- XXVII. Anatomy of the Arteries of the Human Body, Descriptive and Surgical, with the Descriptive Anatomy of the Heart. By John Hatch Power, M. D., Fellow, and Member of Council, of the Royal College of Surgeons; Professor of Descriptive and Practical Anatomy in the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, etc. Authorized and adopted by the Surgeon-General of the United States Army for use in Field and General Hospitals. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 401. . . . . 178
- XXVIII. The Institutes of Medicine. By Martyn Paine, M. D., LL. D., Professor of the Institutes of Medicine and Materia Medica in the University of the City of New York, etc. etc. etc. Seventh edition. 8vo. pp. 1130. New York, 1862. Harper & Brothers. . . . . 181
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ART. I.—*Paracentesis Thoracis; a résumé of twelve years' experience.*  
By HENRY I. BOWDITCH, M. D. (Read before the Boston Society for Medical Observation.)

IN the *American Journal of the Medical Sciences*, April, 1852, I published an article on *Paracentesis Thoracis*, with cases. In January, 1854, I gave in the *American Medical Monthly* an analysis of twenty-five cases of the same. Still later I made further statements on the subject in the *Boston Med. and Surg. Journal*, 1857, and now I wish to give to the Society a brief *résumé* of the principal results of the operation, as performed 150 times on 75 persons during a period of nearly twelve years, viz., from April 17, 1850, to Dec. 17, 1861.

During the above period I have operated 150 times on 75 persons, and have seen other gentlemen operate on 10 more, making 160 operations on 85 persons.

*Innocuousness of the operation.*—I have never seen the least *permanent* evil resulting from any operation, and *only the slightest temporary* difficulties, such as pain, slight dyspnœa, stricture, or cough, &c. This, I think, shows the innocuousness of the operation by means of the exploring trocar and suction pump, as suggested by Dr. Wyman.

*Frequency of the operation.*—One lady (case formerly reported) I tapped 9 times during 8½ months; commencing when she was 4½ months pregnant, and in whom the orthopnœa was, several times, so great that death, I have no doubt, would have supervened within twenty-four hours, if the operation had not been performed. She is now tolerably well, but with a contracted chest, as is usual in chronic pleurisy.

In striking contrast with this case, as it regards the *frequency* of the operation, while resembling it in the number of times it was performed,

was the unique case of an elderly man, very recently under my care, and in which I tapped eight times in six weeks! The patient himself, a physician, earnestly and even solemnly demanded of me the operation as a mere means of relief to intense distress. As he jocosely remarked on one occasion, he considered it one of his "luxuries."

*Cases in which the patient recovered wholly.*—Twenty-nine out of the seventy-five patients got wholly well, apparently in consequence, chiefly, of the operation. The operation was performed generally when severe symptoms were manifest, and I was called in consultation. In a few, a great quantity of fluid was recognized by the physical signs alone, the rational having been slight; but, as the disease was chronic, an operation was deemed necessary. In all these cases, the operations seemed the *first step* towards a cure.

*The character of the fluid and its influence on the prognosis.*—In 26 out of the 75 serum was found; and 21 of these patients got wholly well. If after the first operation the fluid becomes purulent, an almost certain fatal prognosis should be made. I have seen six such cases. Four of the patients died, two were lost sight of, but, when last seen, were failing.

*Pus* was found at the *first* operation in twenty-four cases. Once, it was of the consistence of honey, but I easily drew it through the exploring tube. Seven of these patients recovered wholly; seven died; nine were relieved one or many times; but they had either a long and tedious illness, terminating usually in phthisis, or a fistulous opening, or a still doubtful result.

A *sanguinolent fluid* at the first puncture (and by that I mean a dark red thin fluid, evidently stained with blood, though not coagulating) I consider almost certainly fatal, and a consequence of some malignant disease of the lung or pleura.

There were seven of such cases. In six the patients died. In one there was a doubtful result, but apparently fatal tendencies were commencing. If the fluid is found sanguinolent at the second or any subsequent puncture, I deem it of comparatively *little* importance towards the prognosis.

A mixture of *bloody purulent fluid* at the first operation is usually fatal. Three cases, all fatal, occurred.

A *fetid gangrenous fluid* is very rare, only one case having occurred, and that fatal; but in this case infinite relief from horrible orthopnoea was obtained, and it never returned, though the patient sunk and died in a few days. Gangrenous pleura was found.

I have operated once in *pneumo-hydrothorax* with temporary relief and comparative ease for several days. Many theoretical objections may be urged against the operation in such a case. To such objections I have simply to answer that, as the operation can do no harm and may give much relief, I shall operate again in any case where the dyspnoea may be so great as to require it.



*Cases where no fluid is obtained.*—Finally, in seven cases I got no fluid. These cases occurred usually in the earlier operations, and the failure was often owing, I have no doubt, to the cautious and slow manner with which I plunged the trocar between the ribs, carrying thus the false membrane of the pleura costalis before the instrument instead of piercing it; so that a valve was really formed over the end of the canula. At other times I have little doubt that an error of diagnosis was made, and that instead of a fluid there was simply an unexpanded lung and thick false membranes on the pleura, causing as much dulness on percussion and absence of respiration as a fluid would have done. The differential diagnosis of the two was not, at first, quite so easy as it is now. Inspection usually is the test between the two conditions; the intercostals being distinct, and depressed when a membrane exists; but very indistinct and level with the ribs, or, possibly prominent, when a fluid occupies the chest.

Once an immense tumour occupied and uniformly distended one pleural cavity, and in its course presented all the phenomena, natural and physical, of simple pleurisy. I tapped three times, viz.: at the back, side, and front, at the same visit. No evil followed.

A member of this society asked me my experience as to the good results or otherwise in operations on the right side; observing, at the same time, that one European writer (Trousseau?) contended that pleurisy of the right side is often or always tuberculous. I could not answer definitely, although my impressions were against the truth of the assertion. On referring to the brief summaries, and not to the original notes of my cases, where I find the sides named in 25 cases, I find that in these the operation was performed with the following results:—

	PLEURISY OF	
	Right side.	Left side.
Death . . . . .	4 times.	5 times.
Cure entire, without symptoms of phthisis, except in one, but pleurisy was cured in that	9 “	4 “
Doubtful result . . . . .	1 “	2 “
	<hr/> 14	<hr/> 11

These data do not exactly answer the question proposed; but if tubercles always or more frequently exist in pleurisy of the right side, we should, *à priori*, anticipate more unfortunate terminations of the operation of paracentesis of the right than of the left side. My experience proves exactly the reverse, and may be expressed, if deduced from the above table, as follows:—

Of 25 cases, 14 were of the right side, 11 of the left. Of the 14 of the right side, only one person is mentioned as having tubercles, and in that the pleurisy was cured and the pulmonary symptoms mitigated.

Of the 14 persons tapped in right side 28.57 per cent. died; 64.28 per cent. were cured, and 7.14 per cent. remained doubtful. Whereas, of the

11 cases of the left side, 45.45 per cent. died, 36.36 got well, 18.18 were doubtful.

In other words, twice as many have got well from tapping the right as the left; and only half as many have had doubtful results from operations on the right, as in those where the left side has been tapped.

Hereafter, if my cases are any criterion wherefrom to judge, I shall regard an operation on the right side as much more favourable than one on the left; which I can hardly think would be the case were all right side pleurisies tuberculous.

*When shall we operate?*—Experience teaches me to operate in every case, however recent or chronic may be the attack, provided there is permanent or occasional dyspnoea of a severe character, evidently due to the fluid. I have, of course, more hope of doing good where the disease has not been of too long duration; is uncomplicated with phthisis, or any other disease, and where, moreover, the amount of fluid seems directly the cause of the trouble. I also deem it best to operate in *any*, even latent cases, where the pleural cavity gets full of fluid; and if, after a reasonable amount of treatment, the fluid does not diminish.

*Where shall we operate?*—The point originally chosen by Dr. Wyman and myself, viz.: in a line let fall from the lower angle of the scapula, and between the 9th and 10th ribs, I deem the most appropriate point at which to make a puncture. I have, however, tapped under the axilla, or in the breast, where the case seemed to require it. In selecting the precise intercostal space, on the back, I usually choose one about an inch and a half higher than the line, on a level with the lowest point at which respiratory murmur can be heard in the healthy lung of the other pleural cavity.

I never wait until *pointing* commences; for then I am sure that pus will be found. If *pointing* without opening has commenced, I do not necessarily tap in that place, as recommended by the older surgeons, but seek the most depending point in the chest. While thus desiring to operate before a *local* distension shows itself, I dislike or refuse to tap where there is contraction of the intercostal muscles; and I am certain of getting fluid only where there is distension or flattening of the same.

*Objections to the operation.*—One word on the objections to the operation: "We may puncture the lung." "We may let air into the pleura." "We may by our strong suction injure the lung." "The instrument often fails to operate." "The connecting tube between the pump and the trocar collapses, and thus checks the flow of liquid." "The liquid may be too thick, and cannot be drawn through the small canula." "We may excite inflammation of the pleura." "The operation is useless, because non-tubercular cases will get well without; tubercular will die in spite of it," &c. &c.

One and all of these objections are to me, with the experience I have had, simply absurd. Let any man have good instruments and manage them skilfully on proper cases, and he will agree to the truth of what I state.

The operation, like everything else in all the departments of human life, is imperfect. It cannot cure all. But it has relieved many, and will continue to do so, if surgeons will use it; it has been the prominent cause of relief in many more, and will be so hereafter, if men will theorize less and act more. It has been the sole means of saving life, I am sure, in a few of my cases; and I know some patients have died within the last few years, in New England, as I believe, for want of it, under the care of others.

It is certainly innocuous, and gives so little pain, compared with the relief that it affords, that patients have begged for it to be repeated again and again, as a mere matter of relief. In my opinion it ought never again to be allowed to fall into disuse by the profession. I regard any man who allows a patient to die of dyspnœa from pleuritic effusion, however great may be the complications with other diseases of head, chest, or abdomen, as in the dilemma of him who is either wilfully neglectful of some of the means of relief or cure, now by experience proved to be always at hand, or ignorant of the simple and beautiful operation suggested by Dr. Wyman. To a certain extent I deem my connection with the operation somewhat providential. I had seen, in the earlier years of my practice, men die with sudden dyspnœa, or, after months of obscure disease, die with one pleural cavity filled with serum, and not a particle of other disease; and, finally, I have seen tubercular phthisis follow, after months of debility, from what was simple pleurisy at first.

Having no surgical tastes myself, shrinking from the simplest operations, and doing nothing of the kind save when compelled to do so, I at times urged surgeons to operate. They declined, and men died. Finally, in cases where I had control, I took the responsibility, and asked the surgeons to do the manual they were more accustomed to than I was. Their plan was incision and dissection down to the pleura, and a suppurating wound as a consequence, a long, painful operation. At last Dr. Wyman's instrument and method came to my notice. I seized upon them as those I had long sought for. As Dr. Wyman and I were the only believers in the operation, it devolved often upon me. The result is the experience which I have given above. And now, as I have often said, I would as readily puncture the chest as I would draw a tooth, or vaccinate a child.



ART. II.—*Conservative Medicine as Applied to Therapeutics.* By AUSTIN FLINT, M. D., Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, and in the Long Island College Hospital.

AN explanation of the term *Conservative Medicine* may be required for many of the readers of this journal. The term should be at once explained, because the reader may suspect a meaning quite different from the sense in which it is to be here employed. It is not intended by this term to refer to a conservatism which adheres to principles and rules of practice on account of antiquity, authority, or usage. The conservatism meant is not an adherence to doctrines which have been or are now held. It is not that kind of conservatism which protests against any changes, and resists all innovations. The definition of the term will be found to involve a signification quite the reverse of all this.

In an essay written for another journal,<sup>1</sup> the writer has adopted this term as an analogue of the term *Conservative Surgery*. The conservative surgeon, before resorting to capital operations, carefully considers the situation of patients, and the danger to life which the operations involve; and he regards the preservation of the integrity of the body as a higher success than the most skilful mutilation. In like manner, the conservative physician considers fully the effects of the potent agencies employed as remedies, appreciating the fact that, if not remedial, these agencies are necessarily injurious, and may prove destructive; and in the management of diseases he always accords due importance to the preservation of the powers of life. As the true surgeon is not the mere operator, unmindful of the duty of preserving and restoring parts, who uses the knife without regarding the condition of the patient; so the true physician is not the routine practitioner, prescribing, with an unsparing hand, active therapeutical measures without any clear apprehension of the objects to be fulfilled, making no allowance for the natural tendency of diseases toward recovery, and disregarding the state of the system.

In the former essay, the writer attempted to show that the grand improvements in practical medicine which have been steadily going on for the last quarter of a century, are characterized by conservatism as just defined. This conservatism is shown by a greater discrimination in the use of spoliative, perturbatory, and debilitating measures, such as bloodletting,

<sup>1</sup> North American Medico-Chirurgical Review; the concluding No., viz.: for Nov. 1861 (republished in the American Medical Monthly, No. for July, 1862). In the present essay the writer has endeavoured to develop the subject more fully, to present additional considerations, and to treat of the subject under different points of view.

mercurialization, emetics, cathartics, and severe counter-irritation. It is shown by an increased use of remedies which are potent without damaging the organism, such as opium and other sedatives. It is shown by a reluctance to interfere actively with the course of diseases which have a self-limited career. It is shown by a greater reliance on hygienic measures. It is shown by more attention to alimentation, and by the earlier and more efficient employment of supporting treatment in all affections which tend to destroy life by asthenia. The term *conservative medicine*, thus, expresses the great characteristic of medical practice at the present moment; and it is so, not from the authority of any master mind, or the influence of any dominant theory, but purely because it is incidental to the advancement of our knowledge of pathological conditions, of the action of remedies, and of the natural history of diseases. And the term may also be considered as expressing a great principle which, to a certain extent, should govern the views and conduct of the physician. Regarding it in the latter point of view, I shall present in this essay some considerations connected with the application of the principle of conservatism to therapeutics.

*Medicus Naturæ minister non magister est.* It is interesting to note the principle of conservatism as manifested by nature in the history of diseases. Waiving all questions concerning the existence and sources of morbid conditions, we see exemplifications of conservatism on every side in pathological laws, and this principle becomes more and more conspicuous in proportion as we advance in our knowledge of the natural history of diseases. The well established fact with regard to many diseases, that they tend intrinsically to recovery, and not to death, as formerly supposed, shows the conservatism of nature. The recovery, sometimes even without medication, from diseases which are generally destructive, exemplifies the principle. This is certainly true of pulmonary tuberculosis. The principle is exemplified in the situation of the great majority of local affections which are not traumatic, and therefore said to be spontaneous; the parts oftenest affected being not so closely connected with functions necessary to life as the parts which generally escape. Thus, the great majority of acute inflammations are seated in the skin, mucous structures, and certain of the serous membranes. On the other hand, internal organs, the functional exercise of which is more immediately concerned in vital operations, such as the stomach, small intestines, pancreas, liver, kidneys, are comparatively not often acutely inflamed. The principle is seen in the spontaneous removal of morbid products from different parts of the body, and in the disposal, by elimination or otherwise, of the *materies morbi* which there is reason to believe give rise to a host of local affections.

The study of the events belonging to the natural progress of individual diseases discloses abundant illustrations of the principle of conservatism. The limitation of inflammation to a particular structure furnishes striking examples. For instance, how rare is it that the inflammation in tonsillitis

or pharyngitis extends into the larynx! Were it not for this conservative provision, how serious would be these frequent affections of the throat in view of the liability of extensions to the windpipe, and the danger attendant on this complication! Again, what a vast difference is there, in severity of symptoms and danger to life, between ordinary and capillary bronchitis; and how rare the latter, notwithstanding the frequency of the former! We can only explain this fact by stating that the inflammation extends from the larger to the smaller bronchial tubes only as an exception to a law of the disease. The physician, by attempting to place himself in the false position of the master of nature, may thwart her conservative provisions much to the detriment of his patients. A striking illustration of this fact is afforded by the practice heretofore inculcated in cases of hypertrophy of the heart. We have been taught to pursue active measures, and, by some, measures of a very severe character, with a view to prevent and diminish hypertrophy of the heart. Now, it is plain that this form of enlargement is a most important conservative provision of nature to obviate evils which would otherwise arise from the valvular lesions which precede the development of cardiac hypertrophy in the vast majority of cases. The physician is the servant of nature when he does not interfere with, if, indeed, he do not endeavour to foster, this abnormal condition.

A splendid theme for an essay would be *the principle of conservatism as exemplified in the natural history of diseases*. I must here content myself with this brief reference to it.

Directing attention to *conservative medicine as applied to therapeutics*, the subject naturally presents itself in a twofold aspect, viz.: *First*, as regards the therapeutical indications derived from our knowledge of the pathological character, condition, etc., of diseases; and, *Second*, as regards the general object of remedial measures. I shall consider the subject under these two heads; but, before entering upon them, there are certain considerations which are suggested by the inquiry, What are some of the general characteristics of conservative medicine? Or, to vary the question, What are the more prominent of the traits which distinguish the conservative physician? In answer to this question, I shall offer a series of aphorisms which will lead the way to subsequent inquiries relating to therapeutical indications and objects.

1. The conservative physician endeavours to protect the system, on the one hand, against disease; and, on the other hand, against injurious medication. He therefore employs potent therapeutical measures only with a view to well defined objects which are in accordance with clear indications. He is not represented by the allegory of the blind man with the club; he never strikes at random, but always with a purpose and aim. He regards active remedial agencies as, in themselves, evils which become blessings when they aid in the escape from other and greater evils. To



quote the language which some one has used, "he is content with doing nothing when ignorant how to do good."

2. The conservative physician does not undertake to control diseases which, with our existing knowledge, are uncontrollable. And if he employ measures for that end tentatively, he is governed by this rule, viz., not to subject the patient to measures which, if they do not prove successful, will diminish materially the chances of his passing through the disease with safety.

3. In the management of all the diseases which our existing knowledge does not enable him to control, the conservative physician always pursues the *expectant* practice, using this term in its proper sense, viz., as denoting not necessarily the attitude of a passive spectator of the progress of disease, but the adaptation of therapeutical measures to circumstances as they arise. In this sense, expectation expresses the proper conduct of the practitioner whenever he is not warranted in resorting to treatment with a view to arresting the progress of disease or abridging its duration.

4. The practice of the conservative physician has reference always, not alone to the disease, but to the condition of the patient. In the language of Chomel, he does not treat diseases, but he treats patients affected with diseases. A formularied, routine method of treatment for any disease is, therefore, with him impossible. In different cases of the same disease his therapeutical measures may be quite different, and even directly opposite in their character and effects. Of two persons attacked with a disease, for instance pneumonia, one may seem to him to claim measures which are commonly known as antiphlogistic, while the other may appear to require tonics and stimulants.

5. The conservative physician directs his attention with special care to the vital powers. He is always ready to support these wherever he sees evidence of their failure, without regard to the name or the stage of the disease. He does not wait for the last flickerings of the lamp of life before resorting to sustaining measures; he endeavours to prevent the flame from falling to so low an ebb, and with sagacious foresight he would forestall the occurrence of failure, resorting to sustaining measures even when not imperatively required, rather than run much risk of deferring them when they might be useful. A full appreciation of the importance of supporting the powers of life (using this metaphorical expression in its common, well understood, practical sense) is, *par excellence*, a trait of conservative medicine.

6. The conservative physician is by no means a timid practitioner. He carries a lancet, and is ready to use it under certain circumstances, although, it must be confessed, the instrument is apt to become rusty from non-use. He does not repudiate any of the potent measures embraced in the *materia medica*, but he seeks to employ them with a nice discrimination. He is bold in the use of certain remedies which are used with timidity by many

practitioners to whom the term conservative is not applicable, viz., such remedies as quinia, opium, and alcoholics. His boldness, however, is quite as much displayed by resolutely forbearing to resort to potent measures whenever active interference does not seem to him to be called for, as it is by the employment of powerful therapeutical agencies.

7. Recognizing the fact that medicine should be progressive; that new developments in physiology and pathology, together with the accumulating fruits of experience, should lead to constant improvement in the *ars medendi*, the conservative physician repudiates all dogmas or systems of practice, whether without or within the pale of the profession, which shackle the mind and stand in the way of progress. In medical faith he is independent of creeds and discipleship. He occupies a middle ground with regard to the extremes of the present day as represented by old fogysm and young physic.

8. The most distinguishing characters of conservative medicine, in a few words, are as follows: Recognizing as a fundamental principle of therapeutics that potent remedies are never neutral, but must do either good or harm in proportion to their potency, it aims to abstain from active measures if uncalled for or of doubtful utility, and it strives to assist the powers of life, by means of remedial and hygienic influences, in enduring and triumphing over disease.

This enumeration of some of the prominent traits of conservative medicine might be extended, and each might serve as a text for a distinct essay. But I proceed to consider the subject under the first head, viz., "as regards the therapeutical indications derived from our knowledge of the pathological character, causation, etc., of diseases." And it will serve our present purpose to arrange diseases into the following classes: Inflammatory affections, the essential fevers, degenerations of structure, functional disorders, and a residual class to which we may apply the term diathetic. The subject covers so wide a field that it is hardly necessary to disclaim the attempt to consider it fully within the limits of a few pages. The considerations presented in this essay must needs be fragmentary and discursive, the object being merely to suggest trains of reflection.

Inflammations form the larger share of the affections with which the physician, as well as the surgeon, has to deal. The morbid processes embraced under the name of inflammation have accordingly been studied with great interest; and with what success? The series of phenomena which make up the history of inflammation have been unfolded from the first appreciable event, viz., the determination of blood to, and its detention in, the inflamed part, to the various terminations of the inflammatory processes. But the essential pathology underlies that first appreciable event. What is it which occasions the attraction of blood to, and its detention in, an inflamed part? The causation involves a knowledge of inappreciable con-

ditions antecedent to the development of the phenomena of inflammation. Reference is here had, of course, to inflammations which are not traumatic. It is as certain that some unknown causative influence exists and acts in, as yet, some unknown manner, to give rise to an inflammation when it is said to be spontaneous, as it is that the local injury produces the inflammation when traumatic. If this be a fair statement of our knowledge of the essential pathology and causation of inflammation, what rational conclusion may be drawn therefrom respecting therapeutics? Ought we to expect to be able to suppress an inflammation by diminishing the quantity of blood in the body; or by trying to direct blood elsewhere; or by the production of an inflammation in another part; or by evacuating the stomach and bowels; or by exciting some violent commotion in the system under a vague notion that the local affection may be shaken off? Are the pathological and causative conditions seated in the blood or in the nervous system, or in both? This question we may hope to answer when the physiologist has explained more fully the mysteries of the capillary circulation and of nutrition. Until then, we can hardly expect to find rational indications for arresting inflammation. Our knowledge of the means for this end must be empirical; and experience has not yet led to the discovery.

Let it not be said that medicine is disparaged by this view of the resources of our art. A conservative practice can do vastly more than simply not do harm by vainly attempting, with the measures just named, to extinguish inflammations. It can do much for the safety of the parts inflamed by measures to palliate local symptoms, to promote favorable modes of termination, to obviate incidental evils, to aid in the removal of morbid products, etc. Conservatism dictates measures for those ends, embracing surgical as well as medical interference, as, for example, when paracentesis is resorted to in pleurisy. Conservative practice can do a vast deal by measures addressed to the system. To obviate the general disturbance occasioned by inflammations, or, in other words, to render the system more tolerant of their existence, by means of opium and other anodyne remedies; to support the vital powers by means of tonics, alcoholics, and nutriment—these are indications which have reference to the safety of the patient, and a speedy triumph over the disease. In fulfilling these indications the conservative physician is often called upon to act boldly, resolutely, and perseveringly.

It is to be considered that, exclusive of certain acute inflammations which may destroy life by obstructing the exercise of vital functions, as pericarditis by the pressure of liquid effusion, laryngitis and capillary bronchitis, by preventing the passage of air to and from the pulmonary vesicles, etc., death is generally caused, not by an irremediable injury to the inflamed part, but by the general disorder and failure of the vital powers. Acute peritonitis, for example, is a dangerous disease, not on account of the damage done to the peritoneum or the abdominal viscera, but because the



powers of life do not hold out a sufficient time for recovery. Patients may die with this, as with other inflammatory affections, for the simple reason that they do not live long enough for the restorative processes to take place. Is it not, then, an indication not less in accordance with conservatism than with common sense, to endeavour to obviate the general disorder, prevent failure of the vital powers, and prolong life sufficiently for restoration?

Acute peritonitis has just been cited. How striking an example does this disease afford of an immense improvement due to bold conservative practice! How fatal was this disease under the treatment until recently in vogue, and for which, alas! the practitioner still finds authority in some standard works! Who that has had an opportunity of contrasting the past and present methods of treatment, can doubt that the former want of success was measurably due to over depletion and cathartics? The comparative success of the present treatment, doubtless, is by no means wholly due to the abandonment of these measures. The free use of opium, and of alcoholics when indicated, has contributed, in no small measure, to this success. This is a reasonable opinion, although here, as with respect to other diseases which have rarely been observed under circumstances in which no medical treatment was employed, it is not easy to determine how much a more successful treatment may depend simply on the displacement of injurious measures.

Directing attention to chronic inflammations, to what is their chronicity attributable? Sometimes to an obvious, persisting cause of irritation; sometimes to a palpable, associated morbid condition, as when bronchitis is kept up by pulmonary congestion due to cardiac lesions; sometimes to lesions which, from the situation of the part affected, are restored with difficulty, as in cases of chronic dysentery. In other instances it is attributable to an inappreciable condition which, for the sake of distinction, it is customary to call a constitutional cause. Who has not seen chronic venereal ulcers of long standing heal under the use of mercury; or peritonitis, from which the patient may have suffered for many months, rapidly disappear under the use of the iodide of potassium? Now, there is reason to believe that certain chronic inflammations are not less dependent on a constitutional causation, although the cause may not be of a specific character like that in syphilis. This is by no means a new idea. It was the leading idea in the teachings of Abernethy, and, as the basis of the so-called *alterative* treatment, of which mercury was considered as the chief, it has led to not a little injurious medication. In fact, a signal instance of conservatism is the infrequent induction of mercurialization in the treatment of chronic inflammations, at the present time, as contrasted with the frequent resort to this measure but a few years ago. On the other hand, the existence of a constitutional causative condition in certain inflammations is often not sufficiently considered by practitioners, and hence an over-

reliance on topical measures of treatment which are not only inefficacious, but not infrequently contribute to perpetuate the affection.

As an illustration of the fact just stated, I will select an affection which of late years has attracted a good deal of attention, both professional and popular, viz., chronic pharyngitis. Exclusive of cases of syphilis, this affection is very common, especially among persons of the male sex engaged in pursuits which overtask the nervous system and involve sedentary habits. For several years past this affection has been treated very generally by means of topical, cauterizing applications, usually the nitrate of silver, repeated at intervals for a greater or less period. Has this treatment proved successful? For one, after considerable experience, I am prepared to answer this question in the negative, and this I find to be a conclusion drawn by many from the results of experimental observation. The treatment, I am persuaded, is not only rarely beneficial, but often aggravates the affection. The affection is the local expression of a constitutional state, and will prove rebellious to treatment so long as the latter continues. General measures, in which hygiene plays an important part, effects the cure. I shall content myself with this illustration, although others might be added. Suffice it to say that the same conclusions, I am persuaded, may be drawn with respect to severe topical treatment in diphtheria, and in chronic inflammations seated in other accessible situations, for example, ophthalmias, erysipelas, and certain of the affections of the cervix uteri.

Conservatism dictates an appreciation of the dependence of local affections on a morbid constitutional state, although our present knowledge may not enable us to understand the primary and essential deviations from health which constitute this state. Conservatism sanctions the trial of remedies, under proper restrictions, with a view to the removal of this state. Conservatism is ready to accept remedies for that end, the efficacy of which has been empirically established, without requiring an explanation of their *modus operandi*. The chlorate of potassa, in certain affections of the mucous membranes, would appear to be a remedy of this description. We may hope that additional remedies of this kind may, from time to time, be discovered. In the mean while, conservatism enjoins, not only an acquaintance with the resources of our art, but a just appreciation of the limitations incident to the present state of knowledge; and hence, with reference to the affections under consideration, conservatism tries to avoid being led into injurious medication by such loose expressions as "substitution of healthy for diseased action," and "alterative treatment," expressions which have served as a warrant for not a little mischievous practice.

Finally, conservatism recognizes as a general indication in chronic inflammations, to place and maintain the body in the best possible condition, by means of tonic remedies, adequate alimentation, and the hygienic influences which conduce to that end. It is consistent alike with experience and good sense, that, other things being equal, the nearer the normal standard the

condition commonly known as the general health, the better the prospect of recovery from chronic inflammation, and the better fortified is the system to endure its continuance.

Passing to the essential fevers, we know that each of them has its own conservative, morbid agent, that is, a special cause which will produce one particular species of fever, and that species only. The special cause of variola, for example, will never give rise to rubeola or scarlatina. The special cause known as marsh miasm will not give rise to typhoid or typhus fever. Each of the two last named species of fever has its own special cause which will not give rise to the other species. These statements are based on logical inferences from certain facts, not on the demonstrative proof afforded by an analysis and comparison of the different agents which constitute the poisons producing these diseases. Our belief in the existence of these poisons is not derived from our knowledge of their nature. What are their chemical and physical characters we know not. We know that an exceedingly small and even an inappreciable amount suffices to produce fever, as when certain of these fevers are produced by inoculation and by contagion; and analogical reasoning leads us to the conclusion that they act as ferments, or on the very imperfectly understood principle of catalysis. Hence, we say these diseases belong to a class distinguished as zymotic. And if they act on the principle of catalysis, their primary action must be in the blood. We, therefore, accept the humoral pathology of fever. The demonstrative part of this pathology is confessedly wanting, but it may be considered logically established.

Now, the aim of conservative medicine being to afford protection against disease, on the one hand, and, on the other hand, against needless and therefore injurious medication, the first inquiry is, Do the present resources of our art enable us to control these diseases? As regards the purely periodical fevers, this question may be answered affirmatively. We can control these by means of certain special or specific remedies of which quinia is the most efficient. These remedies, for the time being, either neutralize the poison, or, in some way, suspend its morbid action. Conservatism thus manifests its power to protect against disease by its ability to arrest these fevers. And it has also manifested its protection against needless medication by doing away with certain preparatory and adjunctive measures which, until recently, were deemed important, experience having abundantly shown their inutility. In fact, the doing away with bleeding, emetics, cathartics, and mercurialization, in the treatment of intermitting and remitting fever, is a striking illustration of conservatism. It is but a few years ago that these measures were in vogue; it was then thought to be injudicious to enter upon the special remedy at once; this remedy was given timidly in small doses only, never except in the apyrexial period, and not if the fever were complicated with local inflammation. In each of these



particulars, the treatment has changed, and the change constitutes one of the most important of the late improvements in practical medicine.<sup>1</sup>

Protection against the eruptive and continued fevers, like that afforded by quinia and other anti-periodic remedies against the periodical fevers, is reserved for the future. We cannot control the former as we can the latter. Yet, with regard to the most formidable of all, in smallpox, the glorious discovery of the immortal Jenner, by way of prevention and modification of its severity, affords a protection almost complete, and has deprived the disease of nearly all its terrors. The contagiousness of the eruptive and continued fevers, and the fact that they have a definite, self-limited career, may seem to discourage an expectation that means of controlling them will ever be discovered; but how little ground was there to anticipate the fact that the virus of variolâ, as modified by its production in the body of the cow, would give rise to an affection insignificant except in regard of its power of protecting against the virus received from our own species? How many would have anticipated the wonderful modification of smallpox produced by inoculation! It is not unreasonable to hope that other Jenners will hereafter arise, although Providence may have ordained their appearance at remote epochs. Meanwhile, it is a legitimate object of experimental research to discover means of preventing, arresting, and modifying the eruptive and continued fevers. There is ground for the belief that certain measures, which have been already tried, are occasionally successful in suspending and shortening typhus and typhoid fever. This remark has reference to large doses of opium, and the wet sheet. But in experiments for these ends the rule of conservatism already mentioned is to be observed, viz: not to make trial of measures which, if they do not succeed, will be likely to prove in themselves dangerous. The conservatism of present practice is strikingly shown by the relinquishment of potent measures to break up the continued fevers, viz., bleeding, emetics, cathartics, and mercurialization, the inefficacy of which experience has abundantly established.

The present prevailing views of the management of the eruptive and

<sup>1</sup> The January No. of this Journal, in 1841, contains an article, by the author of this essay, on the management of intermitting fever. In that article the following points were set forth: The safety and propriety of giving quinia in large doses, *i. e.*, from ten to twenty grains; the inutility of preparatory treatment, and of the use of emetics, cathartics, etc., during the progress of the disease; the diminished liability to relapses in proportion as the paroxysms are promptly interrupted, and, in cases in which inflammatory complications exist, the importance of giving the special remedy in doses sufficient to arrest at once the paroxysms. Those views were then at variance with the prevailing modes of practice. The writer is very far from assuming to have exerted much agency in producing the change in practice; but he trusts he may be excused for stating that the article referred to advocated, in all respects, the change which has actually taken place.

continued fevers, irrespective of measures to arrest them, or abridge their duration, are eminently on the side of that conservatism which protects the system against needless medication. Practitioners now rarely subject patients to loss of blood in order to abate the intensity of febrile excitement and prevent the development of local congestions or inflammations; they do not produce local complications by blisters and other means of counter-irritation; they do not subject the system to the perturbation of cathartics to change the condition of the stomach and remove saburral matters; they do not give cathartic remedies to cleanse the bowels, increase the flow of bile, or improve the secretions; they do not resort to powerful measures to produce perspirations which they hope may prove critical; they do not attempt to salivate under the vague notion of producing an alterative effect. These anti-conservative measures belong to the past, and the physician is now satisfied, if he cannot arrest or abridge these diseases, to pursue an expectant course; he watches symptoms, and meets indications as they arise in individual cases. He may see nothing which calls for medication during the progress of the disease. Hygienic conditions receive his special attention, the importance of these having come to be more and more appreciated in proportion as remedial agencies have been used with greater discrimination. Palliation of symptoms and supporting measures often constitute the sum and substance of his treatment. The latter, if occasion require, he employs boldly and perseveringly. In certain cases, when his great object is "to obviate the tendency to death," he supports his patient as he would hold up a drowning man, until, by vigorous exertions, at length the shore is reached.

No branch of the science of medicine has excited greater interest, of late years, than the study of structural changes. Here the application of the microscope has been of inestimable service, by unfolding, first, the minute structure of organs in health, and, second, the alterations due to disease. How much light has been shed on our knowledge of the various lesions of different organs—the brain, liver, kidneys, heart, etc.! And much more information is to be expected from continued microscopical researches. But, complete as our knowledge of appreciable changes of structure may become, this knowledge is but the scaffolding raising us higher and higher toward the primary conditions of disease; and these are still beyond us when we have reached the highest point of elevation. In other words, structural changes are the effects of prior morbid actions, and the latter must be understood before we can comprehend fully the essential character of diseases. I am far from wishing by this statement to depreciate the results of microscopical researches. It is easy to cite illustrations of their great practical value. Thus, our knowledge of the changes which the cerebral arteries undergo from the deposit of fatty granules, enables us to explain the occurrence of apoplexy; our knowledge of the fatty degenera-

tion of the muscular fibres of the heart, affords an explanation of the weakness of that organ in certain cases and the occasional rupture of its walls; the presence of newly developed fibrous tissue in the interlobular spaces of the liver in cirrhosis, renders the occurrence of ascites intelligible; the loss of the secretory cells of the convoluted tubes of the kidneys in certain affections of the kidneys, accounts for the production of uræmia—and numerous additional examples might be cited to show how important in their bearings on practical medicine are the developments for which we are indebted to the microscope. Still, morbid anatomy, in its widest scope, is only but a province of the natural history of diseases. It describes appearances; it traces the different steps of morbid alterations, and strives to ascertain their points of departure—and this is vastly important; but the prime source of the lesions which it studies underlies and precedes the earliest of the changes which the senses can discover. Take, for example, Bright's disease, and admit the researches of Dr. George Johnson and others to have established that the structural changes incidental to this disease have their point of departure in the secretory cells of the kidneys, and that the various morbid changes of the organs are fully explained by the loss of cells, the presence of fatty and other deposits, etc., we do not reach the *fons et origo* of the disease. The morbid conditions on which hangs the first link of the chain of appreciable alterations, is inappreciable and, as yet, unknown.

Commensurate with our progress in the knowledge of structural changes, has been improvement in the means of determining their existence during life. We have learned to investigate certain vital organs with wonderful accuracy. The examination of the urine, chemically and microscopically, reveals morbid conditions of the kidneys; auscultation, together with the other methods of physical examination of the chest, discloses the lesions to which the lungs and heart are liable. Means of interrogating, in like manner, the liver and other of the abdominal viscera, will, in all probability, be found when the preceding changes and their pathological relations have been more fully studied. But it is to be considered that the diagnostician deals with symptoms and signs representing existing changes which have made more or less progress. He determines mischief already done. He has not often the opportunity, and, if he had, he is rarely able to foresee the occurrence of internal lesions. Every clinical observer knows that affections involving irremediable lesions are developed imperceptibly, and are already developed when cases first come under the cognizance of the physician. This is true of Bright's disease, cirrhosis of the liver, pulmonary tuberculosis, carcinoma in various situations, organic disease of heart, etc. Immensely important as it is to determine the existence of lesions and the amount of damage which they have occasioned, it would be of immense advantage to be able to go still farther and ascertain the existence of those



morbid actions which precede and determine the development of structural changes.

Not to dwell too long on these considerations, let us inquire into their general bearings on therapeutical indications. What are the dictates of conservatism in view of the foregoing facts? Suppose an important organ to be the seat of some structural change, and, so far as the organ is already damaged by the change, the affection to be irremediable. Nature, to a certain extent, has provided for such a state of things, by furnishing a surplus amount of structure in important organs. The lungs are so far beyond the actual wants of the economy, that a loss equivalent to the functional capability of one whole lung is not incompatible with robust health. The two kidneys exceed by at least the function of one of these organs, the necessities of the system. The heart may be considerably impaired, and still be sufficient for the circulation; and so with the liver, and, doubtless, the glandular organs contained in the stomach and intestines. *Medicus naturæ minister est.* The physician should endeavour to aid nature in doing as well as possible under the damage which the affected organ has sustained. How is this object to be attained? In general terms, by preventing, if possible, any farther progress of the structural change, and placing the organism in the best possible condition compatible with the existence of the lesion.

We may lay it down as a rule of general application, that an organic affection is less liable to progress, the functions of the affected organ suffer less, the system is less disturbed, and the local mischief is borne for a longer period, in proportion as, in all other respects, the body approximates to a state of health. Striking results are often obtained in cases of an incurable malady, by effecting an improvement in the state of the system. For example, it has occurred to me repeatedly to see patients enter hospitals with Bright's disease accompanied with such an amount of dropsy, prostration, etc., that the prospect of improvement seemed most unfavourable; but, after a time, the dropsy has disappeared, the strength has improved, and the patients have left the hospital feeling able to return to labour. I do not now refer to cases of acute albuminuria, which may pursue this course and end in recovery, but to chronic cases of an incurable affection of the kidney. The lesion continues in the cases referred to, the urine remains albuminous, and, sooner or later, grave consequences are developed. Whence the marked improvement and apparent recovery? Simply because the system has been improved by rest, by nutritious food, by tonic remedies, and, probably, by an interruption of habits which have contributed greatly to the production of the local affection. Similar examples might be cited of patients with other affections, such as cirrhosis of the liver, cardiac lesions, and pulmonary tuberculosis. Structural changes generally commence and increase to a certain extent without giving any obvious manifestations of their existence; the system tolerates them, provided it has

nothing else to bear. But when other circumstances occur to disturb or weaken the economy, an affection, up to this time latent, declares itself. If now the practitioner impute everything to the local affection, he will be much in error. Let him succeed in restoring the system to the state in which it was prior to the manifestations of the affection, and the latter may again become comparatively innocuous.

A striking illustration of the influence of associated circumstances in exaggerating the effects of a local affection is sometimes afforded by the coexistence of anæmia and cardiac lesions. A patient with this combination of affections may present palpitation, dyspnœa, and general dropsy, so that a fatal termination may seem to be near at hand. But, by removing the anæmic state, the effects of the disease of heart disappear, and the patient appears to recover so fully that, were it not for the testimony of physical signs, the existence of the cardiac lesions would not be suspected. Examples of this kind have repeatedly fallen under my observation. Other examples and considerations might be adduced to show how much conservatism can sometimes accomplish by enabling the system to bear up under local affections, the continuance of which is inevitable: but I must hasten to another division of the subject.

Disorders occurring independently either of inflammation or appreciable lesions, and, therefore, distinguished as functional, differ as regards their pathological import. A correct interpretation is necessary to a full understanding of rational indications. Vomiting and purging, for example, in the course of Bright's disease, have a special meaning which the researches of Bernard and others have enabled us to understand. They show, in that connection, the conservatism of Nature, the object being to eliminate vicariously the urea which accumulates in the blood in consequence of its deficient excretion by the kidneys. The conservative physician thus follows the guidance of nature when he endeavours to relieve the system of this excrementitious principle by remedies which act upon the gastro-intestinal mucous membrane; and he would violate conservatism were he to attempt to arrest these symptoms of disorder of the digestive organs. In most instances, however, disorders of functions either have not so definite a significance as this, or our present knowledge does not enable us to interpret them fully; and hence the practitioner must derive his indications from certain general principles.

Functional disorders involve, for the most part, morbid conditions of the nervous system. And these, when not produced directly by over-exercise or over-excitation, generally involve a prior abnormal state of the blood. This is a capital fact as regards therapeutical indications. The nervous system, as a generator of force, is powerless, and all its vital functions are speedily lost, without the presence of oxygenated blood. How quickly are the power of willing, the faculty of feeling, and consciousness suspended

by the deficient supply of blood to the brain in syncope! The blood is the medium, on which the nervous system is as dependent for the capacity to perform its functions, as the body on the atmosphere for the continuance of life. It is not strange, therefore, that deviations from the normal composition of the blood should occasion disturbance of the functions of the nervous system. But the effects of certain poisons upon the nervous system, when introduced into the blood in exceedingly minute quantities, are truly wonderful. A fraction of a grain of strychnia acts upon the motor nerves, leaving the mental faculties intact, and gives rise to epileptiform convulsions; a similarly minute quantity of woorara paralyzes the nerves of motion; a few inhalations of the vapour of chloroform extinguish the faculty of feeling pain; a few drops of the tincture of the veratrum viride reduces, in a notable degree, the frequency of the heart's action; an amount of atropia almost inappreciably minute suffices to paralyze the circular fibres of the iris: these are some of the well-known manifestations of an astonishing susceptibility of the nervous system to the action of certain morbid agents contained in the blood in exceedingly small quantities. The facts just stated (of which it is only necessary to remind the reader) are valuable as shedding light on the interpretation of various functional disorders.

An impoverished state of the blood stands in a causative relation to various functional disorders. Clinical experience teaches that most of the neuroses, together with various disorders, such as palpitation, dyspepsia, constipation, etc., are often associated with anæmia, and disappear when the blood is restored to its normal condition. It is a general principle, then, in the management of functional disorders, to direct attention to the state of the blood. And here I am led to remark, in passing, that the improvements in practice based on the knowledge and appreciation of anæmia, acquired within the last few years, furnish one of the most striking of the illustrations of conservative medicine. Before this condition of the blood was understood, the affections dependent thereon were, of course, not correctly interpreted, and their treatment was inefficacious if not injurious. And the non-recognition of this condition as coincident with a host of affections, involved a want of discrimination in the employment of the antiphlogistic measures, which was the source of not a little unsucess and injury. The anæmic state is a very important source of indications in the treatment of functional disorders; but there are doubtless other morbid conditions of the blood of which our present knowledge affords less precise information. Various functional disorders, as well as inflammations and structural changes, are probably due to toxæmic conditions which remain to be ascertained. Unknown poisons, received from without and generated within the body, may be the source of diverse affections, the origin of which we are now unable to explain. Reasoning analogically from the effects of the well-known poisons to which reference has been made, we are led to this conclusion. Moreover, we have already acquired knowledge of certain forms of toxæmia, occurring



as results of morbid actions within the organism. We know that urea accumulating in the blood acts as a poison on the nervous centres, giving rise to epileptiform convulsions and fatal coma. We know, too, that serous and other inflammations are incidental to uræmia. The researches of Garrod appear to establish that gout is due to the accumulation of uric acid in the blood; and the ingenious and striking experiments of Dr. Richardson go to show that it is lactic acid which gives rise to the articular affection and to endocarditis in acute rheumatism. May we not expect from researches in this direction developments which will shed new light on the production of other affections, and furnish important therapeutical indications? Assuming, for example, that cholesterine is an important excrementitious product produced in the brain and nerve tissue, and eliminated by the liver, it may be found that a deficient excretion of this substance is the source of a toxæmic condition which has important pathological relations; and we may find that there is a substratum of scientific truth in the vague notions of biliousness with which the professional and popular mind have been so long and strongly imbued. Cholesteræmia is one of many analogous conditions of the blood which are yet to be revealed and clinically studied.

Reasoning from the analogy between the effects of certain poisons and the phenomena of certain functional affections, it is reasonable to attribute the latter to a toxical source. For example, the phenomena of epilepsy bear so much similarity to the effects of strychnia, that the convulsions produced by this poison are said to be epileptiform; and this is true also of the convulsions incidental to uræmia. Now, taking into view the clinical history of epilepsy—convulsive paroxysms of brief duration, recurring at variable intervals, the patient often perfectly well just before and immediately after the paroxysm—how much more probable is it that a poison is generated somewhere in the body, and manifests itself by a powerful transient action on the nervous centres, than that the phenomena are due to any mere disturbance of the circulation or to slight changes in the consistence of the medulla oblongata such as are described by Von der Kolk. What a blessing would be the discovery of the nature and source of the toxæmic condition giving rise to epilepsy and the means of preventing the production of the poison!

The highest aim of conservative medicine in all affections involving toxæmia from morbid actions within the body is expressed in the foregoing sentence. It is to obviate the production of the poisons. But first of all, the sources of toxæmia must be ascertained and the conditions under which its different forms are produced. Here is a field of research from which much is to be hoped for, but from which it is needless to say little has been as yet acquired. The aims of conservatism, next in importance to the one just stated, are, knowing the nature of different poisons, together with the means of their destruction or expulsion from the body, and recognizing

their existence in the blood as early as possible, to effect either their neutralization or elimination.

I shall pass by the class of diseases which I have distinguished as diathetic with a very few words. The meaning of the term diathesis, which is used in a variable and often an indefinite sense, I would here limit to denote a special state of conformation or of the constitution, which, under requisite causative conditions, determines the occurrence of a particular form of disease; in other words, an intrinsic aptitude of the organism to the development of certain affections. This diathetic condition may be innate or acquired, and it is often inherited. In this sense scrofula, tuberculosis, asthma, rheumatism, gout, are diathetic affections. In what consists the diathetic state our existing knowledge does not enable us to say.

Conservatism would dictate the importance of removing the state if it be practicable. But it is evident this is not to be done by medication, for the existence of a diathesis is not inconsistent with health; and, moreover, we have not the means of determining with positiveness the existence of a diathesis until it has eventuated in the development of disease. That a diathetic state may be held in permanent abeyance we have every reason to believe. This is accomplished more by hygiene than by therapeutical influences, viz: by climate, habits of life, and avoidance of the causative conditions which render active a latent diathesis. This division of the subject is by no means lacking in interest and importance, but the space already occupied warns me not to enter more fully into it. Besides, the considerations which are suggested under this head relate more especially to hygiene, and the application of conservative medicine to this department of medical practice does not enter into the scope of the present essay.

So far, the subject of this essay has been considered in the first of the two aspects under which it is to be regarded, viz: "The therapeutical indications derived from our knowledge of the pathological character, causation, etc., of diseases." It remains to notice the second aspect, viz: "The general objects of remedial measures." These two divisions of the subject are correlative; therapeutical indications and therapeutical objects are, of course, mutually involved, but new considerations arise in looking at the subject from the latter point of view. I shall content myself with endeavouring to classify the objects of remedial measures, and offering a few remarks under the head of each class. The conservative physician places before himself certain general objects in dealing with diseases; what are these objects? They may be embraced in five classes:—

1. The first object is prophylaxis. Diseases may sometimes be prevented. It is not strictly appropriate to call this a therapeutical or remedial object, but in so far as medicinal agents are employed for the prevention of diseases, the object falls within the province of the therapist, and the incongruity is merely in the use of terms which imply that disease already

exists. Excluding preventive measures which are properly surgical, such as the cauterization of poisoned wounds, etc., known prophylactic remedies are not abundant. In fact, we are limited to a few examples. The protective efficacy of quinia against intermittent fever may be considered as sufficiently established. Alcohol appears to protect the system against certain venoms. The protective power of alcohol against tuberculous disease is a question *sub judice*, and one may well dread the settlement of the question in the affirmative. The antidotes to poisons in the stomach are preventives of the diseases which they would produce if not neutralized. In like manner, we might hope to discover antidotes to hæmic poisons, were we acquainted with their nature, and aware of their existence prior to the production of the affections to which they give rise. Doubtless by judicious management secondary affections may sometimes be prevented. Thus, by favouring the elimination of urea, in uræmia, either through the kidneys or the alimentary canal, we may prevent, for a time at least, inflammations, convulsions, and fatal coma; and by restraining the excretion of albumen with the urine, we may prevent the occurrence of dropsy. Other instances of this kind of prophylaxis might be cited; but it is evident that what we may accomplish is, for the most part, only a matter of reasonable conjecture, and could not be established by positive proof. It is a curious fact that certain affections appear to be prophylactic as regards others. Asthmatic persons very rarely become tuberculous. The same is true of persons affected with organic lesions of the heart. Tuberculous patients seem to be insusceptible to the special cause producing typhoid fever. Acute rheumatism and tubercle are not often associated. Other illustrations might be cited. The incompatibility of certain diseases, however, can hardly be made available in practice; and, in short, our expectations from the future, as regards the discovery of prophylactic medicinal agents must needs be small were they to be measured by what has been already discovered.

2. A second object is the arrest of diseases. To arrest diseases *in limine*, cut them short, or, in the significant language of some French writers, jugulate them, is, obviously, an object in desirableness ranking next to prophylaxis. But as regards the extent to which this is practicable, how different the popular belief from the present views of the best informed members of the profession! The notions of the public concerning medical matters generally emanate from the profession, and the reason why patients expect diseases to be arrested is, the ability to do it has been assumed by physicians. It is not long since physicians conscientiously believed that they often strangled diseases which now they are content to allow to run their course. It is only a few years ago that inflammations and most of the essential fevers were considered to be amenable to what have been called abortive measures of treatment. Popular notions are not readily changed, and, with respect to this point, our knowledge is simply in advance of



public faith. But why is it that physicians were formerly self-deceived in this regard? Chiefly because the art of diagnosis had not been brought to such perfection as it has been within the past few years. Patients with an attack of pleurodynia or intercostal neuralgia, for example, were often thought to have acute pleurisy or pneumonia. A copious venesection, an active purge, and a blister, appeared to check, at once, the progress of the inflammation. The pain was in fact suspended, and although the recovery from the effects of the remedies may have been slow, the treatment appeared to be signally successful. Neuralgic affections had been comparatively but little studied, and were often confounded with inflammatory affections. Practitioners thought that they contended with inflammation of the bowels and brain much oftener than now. Ephemeral fevers were considered to be examples of continued fever broken up. As we have improved in diagnosis, the resources of therapeutics have seemed to be curtailed. Yet, what an improvement is it that the active treatment formerly in vogue to arrest many diseases, is no longer resorted to for that end! Conservative medicine has here gained much in the way of protecting the body against the evils of needless therapeutical measures.

On the other hand, conservative medicine has gained much in the way of abortive treatment in certain affections. The periodical fevers are arrested with much more promptness and certainty than some years ago. This is true of certain functional disorders, such as colic, cholera morbus, and certain forms of neuralgia, by means of the bolder use of certain remedies, especially quinia and opium. We can count on the arrest of some diseases, but it must be confessed, the number is very limited, not embracing those which are the most frequent, viz: inflammations and other than the periodical fevers. Here is ample scope for future discoveries which may enlarge beyond our present powers of calculation the resources of practical medicine.

3. A third object is the cure of diseases. I use the word cure in its conventional sense. From its etymology it should denote simply the care (*cura*) of the sick. And the latter signification expresses the true function of the physician. His business is to take care of the sick, which means, watching the course of disease, applying the art of diagnosis and of prognosis, bringing to the bedside his knowledge of the natural history and laws of different affections, regulating hygienic conditions, exercising a proper moral influence, and prescribing remedial agents where these are required. Thanks in behalf of the character of the profession, medical practice bids fair to become something higher in the estimation of the public than the administration of drugs! The time is coming when the idea of the doctor will be less inseparably associated than heretofore with the lancet and pill box! But using the term cure in its conventional sense, it means the exercise of a controlling influence, to a greater or less extent, over diseases. And as an object of therapeutics, the curative

treatment will embrace measures which abridge the duration of diseases, diminish their severity, or which influence favourably their progress in any manner and conduce to a favourable termination.

As with the arrest, so with the cure of diseases, the efficiency attributed to therapeutical interference would seem to have decreased in proportion as our knowledge has advanced. Physicians formerly congratulated themselves on curing diseases which ceased by their own limitations, and which had no tendency to a fatal result. The recovery was considered as proof of a cure having been effected, and that they were not indefinitely prolonged, was evidence of their duration having been abridged. The study of the natural history of diseases within the last few years has led to the knowledge of the laws of self-limitation, and of the amount of danger which belongs to them intrinsically. The consequence is, the physician is content to assume to be more the servant, and less the master of nature. He undertakes less, and nature has the opportunity of accomplishing more. Here, too, popular belief has not kept pace with the improvement of medicine, and patients are often not satisfied to be taken care of, but expect to be cured. Unquestionably, cases of disease are better managed now than heretofore, and the improvement involves, in part, less reliance on certain therapeutical agents which were formerly considered as curative. I refer more particularly to the so-called antiphlogistic measures. We should not hesitate to acknowledge this fact. It is certainly no disparagement to medicine that it has improved, and it must be expected that improvement will consist, measurably, in the correction of errors, as well as in newly acquired resources. But the improvement is by no means wholly of this negative character; it consists, measurably, in the employment of more efficient curative treatment. Of the latter, the free use of opium in acute inflammations, and especially in acute peritonitis, is the most prominent example. The use of large doses of the iodide of potassium in syphilitic periostitis, and in some of the forms of chronic inflammation, and of quinia as a curative remedy in remitting and yellow fever, and in certain cases of neuralgia, may also be cited in the same category.

The antiphlogistic measures of treatment were formerly employed too indiscriminately because inflammations were not accurately discriminated from other affections; and too freely because undue reliance was placed on their curative influence. What is the correct estimate of their efficiency? This is a question which every reflecting physician cannot but have propounded to himself. Do bleeding, cathartics, antimony and other sedatives, mercurialization, etc., exercise curative influence over acute inflammation? Do they contribute nothing toward diminishing the intensity of inflammation, shortening its duration, limiting the amount of exudation, and favouring resolution? If not, these measures always do harm, and should never enter into the treatment of inflammation. There are observing and thinking physicians who adopt the latter view, and there are those who still

have great faith in the efficacy of these measures. The truth probably lies between these extremes. For one, I am not prepared to ignore entirely the experience of candid, sagacious observers for many past generations. I believe that these measures may exert a certain amount of curative influence, and that whether they do harm or good depends on the discrimination with which they are employed. If resorted to injudiciously, the harm will preponderate over the good; and if judiciously employed, their use will undoubtedly be much restricted as compared with the past.

This train of remark has opened up a large topic which I cannot here discuss. I shall leave it after pointing out a highly important practical application of the *juste milieu* doctrine with regard to antiphlogistic measures. And I am led to make this application because it involves, as it seems to me, a nice exemplification of conservatism. There are certain inflammations, to which reference has been already made, which destroy life, not from their extent or intensity, but from circumstances incidental to their situation. This is true of acute laryngitis. The same amount of inflammation situated elsewhere, would be trifling; here it is fatal by causing obstruction at the larynx. Capillary bronchitis is an analogous example; the danger is from the obstruction of the small bronchial tubes. Acute meningitis is another example; the danger is chiefly from compression by the products of inflammation. Patients die from these inflammations by apnoea. On the other hand, the source of danger in inflammations situated elsewhere is, generally, in the disturbance of the system and failure of the vital forces. Patients die in most cases by asthenia. Now, in the latter inflammations, the evils of the antiphlogistic measures have reference to the source of danger and the mode of dying; and the problem is, to determine whether the curative influence of these measures, as regards the local affection, will overbalance their effect on the powers of life, or *vice versa*. In the one case good, and in the other case harm, will preponderate. But in the former inflammations there is not the same need of sparing the powers of life. The danger is not from the giving way of these. Hence, we may consider chiefly, in such cases, the curative influence of antiphlogistic measures as regards the local affection; or, in other words, we have not to balance the probabilities of good or harm as in the previous problem, but simply to secure all the good to be obtained by their judicious employment. This mode of reasoning will be likely to lead to the continued use, to a greater or less extent, of antiphlogistic measures in certain inflammations, albeit their use may be generally abandoned as either unnecessary or as doing more harm than good.

The fourth object is palliation. Palliative measures enter largely into the management of diseases. They mainly constitute the treatment in two classes of cases: *first*, in those in which the disease pursues a favourable course without the need of active interference; and, *second*, in those which offer no encouragement for curative treatment. Relief of pain or distress



is an important object of treatment irrespective of the issue of a disease; and it is to be reckoned among the recent improvements in practice not least in importance, that physicians are not now to be restrained, as they have been, in the use of opium and other anodyne remedies, by apprehensions of their unfavourable influence on the progress of various affections. We hear much less nowadays than formerly of the danger of producing cerebral congestion or locking up the secretions by opiates, notions which often deprived patients of the comfort and advantage to be derived from their use. Palliative measures, although addressed to symptoms, and not to the disease *per se*, may, nevertheless, be to a greater or less extent curative by diminishing the general disturbance and consequent exhaustion incidental to the continuance of suffering.

The fifth object is support. Pre-eminent among the characteristics of conservative practice is the employment of supporting measures in all cases of any disease, whatever be its name, character, or situation, in which danger from failure of the powers of life is to be looked for. Of the importance of this object enough has been already said in the course of the foregoing remarks. Suffice it to add a consideration having reference to the value of support in cases which are unattended with danger to life. In emerging from an acute disease of any kind, a patient who has been judiciously supported by tonics, nutritious food, and, if need be, alcoholics, enters upon convalescence with vigour of body and mind far less impaired than if this object of treatment had not received appropriate attention, and the complete restoration is more rapid. A comparison of the condition of patients, now and formerly, after the termination of diseases in convalescence and recovery, would perhaps afford a stronger contrast illustrative of improvement in practice, than a comparison of the rates of mortality. This contrast is, in part, due to differences pertaining to the employment of curative measures of treatment, but, in no small measure, also, to differences of management as regards supporting measures.

The foregoing classification of therapeutical objects does not embrace, distinctly, a class of measures which hardly ranks inferior to any in its bearing on the management of diseases. I refer to sanitary or hygienic measures, relating to air, temperature, diet, cleanliness, climate, moral influences, etc. The subject of this essay embraces only considerations relating to therapeutics. *Conservative medicine, as applied to hygiene*, is a subject not less fruitful in practical considerations. This subject is reserved for a future essay.

ART. III.—*Report of Fifty-seven Cases of Amputations, in the Hospitals near Sharpsburg, Md., after the Battle of Antietam, September 17, 1862.*  
By G. J. FISHER, M. D., of Sing Sing, N. Y.

THE battle of Antietam was fought on Wednesday, September 17, 1862. The aggregate loss of both armies, estimated approximately, in round numbers, was 5,000 killed and 20,000 wounded. In their retreat across the Potomac, the enemy left between fourteen and fifteen hundred of their more severe cases of wounded to the tender mercies of the victors. They were crowded into farm-houses, barns, stables, sheds, and negro shanties, with more or less straw or hay beneath them, as they had been brought off from the field of battle. Every building in the region had been thus appropriated, regardless of its location, salubrity, capacity, convenience, or adaptation to the purpose in any other particular except as affording a shelter, more or less complete, from the direct rays of the sun or from rain.

Dr. Letterman, Medical Director of the Army of the Potomac, had detailed Dr. Roche, U. S. A., to take the general charge of all the prisoners. Dr. R. soon ascertained that there was a deficient force of rebel surgeons to give proper attention to their wounded; he accordingly sent to their aid a number of Union volunteer surgeons. The writer was among the number, and was placed in charge of Kershaw's brigade hospital, which was but a portion of McClain's division hospital, containing over two hundred wounded men. The number of patients under my exclusive care was a little over sixty; for this hospital (Kershaw's) one orderly had been detailed as *cook*, and another as attendant on the surgeon. The hospital \* comprised one small old farm-house, without any furniture, not even a chair, two negro huts, and one cow stable, the earth floor covered to a depth of two feet with manure, the top slightly strewn with coarse straw. Most of the hospitals had similar wards. The men were sadly deficient in blankets and clothing. Their personal condition was extremely wretched; they were begrimed with filth and alive with parasites. Notwithstanding their total neglect of cleanliness, they were almost invariably hardy men, capable of enduring great fatigue and privation. They were thoroughly inured to hardships, and had cheerfully performed the rigid requirements of their service. They were not desponding, although they were wounded and left prisoners in our hands. They were grateful for the least favour, and hopeful of recovery. Such was the general condition of the rebel prisoners for several days after the battle. The government, but particularly the U. S. Sanitary Commission agents, as soon as practicable, furnished a liberal supply of the most essential articles for the treatment of the wounded, including bed-sacks, blankets, clothing, stimulants, food, &c. These needed supplies, with kind attention, gave the men great cheer, and filled their hearts with gratitude, which doubtless had a material influence on their recovery. Before the stock of carefully prepared food and stimu-

lants was received, the wounds indicated a deficient vitality, which soon changed under an improved regimen.

While engaged in the care of the rebel wounded, the writer learned that no records were kept by the surgeons, except a list of deaths. Being struck, by this neglect, with the loss of so many valuable facts, and so much material for the formation of reliable statistical tables, from which important principles and rules, if not laws, could be deduced for future use in military surgery, a few minutes were set apart each day for recording the history of interesting cases of wounds, and particularly cases of amputation and resection. The materials for the following tables were collected in the houses in the vicinity of my own hospital. Had I remained a week or two longer, the statistics of several hundred cases could have been collected, without interfering with my special daily duties.

What is most needed to aid in this work is a supply of blanks. The following tables are given as an example, subject to such modifications as the Surgeon General or Medical Inspectors may think proper to make. By furnishing a few well-arranged blanks for different classes of surgical cases to each member of the medical staff, a vast number of facts would be rescued from oblivion, which, by their accuracy, being taken on the spot, and their uniformity in regard to the method of record, would be valuable contributions to our science and art.

The "*present condition*" of all the patients given in the following tables was carefully taken in the afternoon of October 1st, sixteen days after the battle. It is admitted that the time was rather short to speak with entire certainty in regard to prognosis, yet it is my opinion that all will recover who are there said to be "*doing well*." The relative advantage of *primary* and *secondary* amputation was clearly demonstrated so far as my observations extended. It was gratifying to discover among nearly all the surgeons with whom I had communication, especially those who had been over a year in the service, a growing or fixed principle of action in reference to this point. Many confessed that they had learned, too often by sad experience, that amputations had been delayed, under the impression that the shock of the operation, added to the original injury, would increase rather than lessen the danger to the patient, and that in the mean time it would perhaps be thought best to attempt to save the limb, providing no bad symptoms ensued. Macleod, in his *Notes on the Surgery of the Crimea*, says: "The experience of the Crimea in favour of early operation was unequivocal in both armies, and needs no illustration from me." He adds in a note: "I am led to understand, from a very well-informed source, that the Russians also lost two-thirds of all their secondary operations, but saved a fair number of their primary."

I was informed by the rebel surgeons that secondary amputations were much more frequent in their early military experience than at the present time, which corresponds with a statement of Macleod in his *Notes*.

The extreme desire to be conservative, by the sacrifice of as few limbs as



possible, led to a great number of unsuccessful attempts to preserve more or less of an extremity, by resection, or trusting to the hope of reunion. By far the majority of resections after gunshot injuries of the bones, have resulted in failure, and very few who have watched the progress of the case now look upon the operation with favour, but consider it questionable conservative surgery.

The profession, civil rather than military, is still divided on this subject. The distinction between cases of disease and accident has not been made with sufficient clearness, and doubtless this has led to indecision, hesitancy, and fatal delays. The accumulated experience of every recent war has been so uniform and positive on this point, that it should be regarded henceforth as a settled question, a demonstrative, yes, a surgical *law*, that in any case where amputation is required after a gunshot or other injury, every hour the operation is delayed diminishes the chances of a favourable issue. In regard to shock, which is regarded with so much dread, and assigned as a reason for delay, it is now well known that it is not established for some time after the receipt of the injury; the interval varies in different cases, but is long enough in most cases to afford time for amputation. If this "precious moment," as Macleod calls it, cannot always be seized, Longmore assures us that if the "shock" is moderate in degree, this is not a sufficient reason for delaying amputation. He adds: "A moderate exhibition of stimulus and a few consolatory words will often remove this, and, even though some faintness, pallor, and depression remain, no ill consequences ensue." In the Crimea the operation was frequently done before the shock had disappeared, and with impunity.

Longmore says: "The introduction of chloroform, by its negative operation of preventing pain or alarm, and by its positive action as a stimulus, has done much to remove many of the objections which have been urged against early amputations after gunshot wounds."

Macleod gives his testimony of chloroform thus: "If we believe, as I certainly do, that by the use of this anæsthetic all fear of intensifying the shock is obviated—which was one reason why surgeons delayed operation—then the tendency of military surgery, since the introduction of chloroform, must be to still earlier and more prompt interference."

With the excessive duties which an active campaign or the results of a battle impose upon the surgeons, it is difficult to find time or inclination to collect and record materials for reliable statistical tables. This difficulty could be greatly overcome by the medical department furnishing blanks, with appropriate headings for all the facts desired on any subject. In case the patients are removed from the care of the surgeon who kept the record, a copy of the partial record should be sent with the patients, to be completed as time developed the desired information. I have not learned that any such means have been taken by the Surgeon General of the U. S. army, and though I pray God may soon end this horrible civil war, yet it may not be too late to issue proper blanks, by means of which much valuable information may be collected, whereby certain points may be finally settled.

TABLE I.—*Amputations of the Thigh.*

No.	NAME.	AGE.	RANK.	REGIMENT.	NATIVITY.	PREVIOUS HEALTH.	MISSILE.	CHARACTER OF WOUND.	DATE OF AMPUTATION.	MODE.	POINT OF AMPUTATION.	DATE OF DEATH.	CAUSE OF DEATH.	PRESENT CONDITION AND REMARKS.
1	Alfred Williams	25	Private	13 Miss.	America	Good	Minie ball	Extensive wound of knee-joint.	1862 Sept. 18	Flap	Low. third	1862 Sept. 21	Pyemia	Hemorrhage on battle-field; maggots in stump.
2	Jesse W. Young	22	"	13 "	"	"	"	Left knee-joint, very badly.	" 20	Circular	"	"	"	Doing well; will recover.
3	J. McNut	26	Lieut.	17 "	"	"	Shell, frag.	Patella shot off; lateral dislocation of head of tibia.	" 18	Flap	"	Sept. 19	Shock & exhaustion	Died on the battle-field, 30 hours after wound.
4	J. G. Rainwater	28	Private	18 "	"	"	Minie ball	Comminuted fracture of tibia, and wound of anterior tibial artery.	" 19	Circular	"	" 22	Pyemia & mortification of stump	Gangrene of leg before amputation was performed.
5	R. Lence	35	"	18 "	"	"	"	(Not ascertained).	" 17	"	"	" 21	Pyemia	Crowded hosp., bad air, &c.
6	W. R. Bryant	18	"	18 "	"	"	"	Injury to left knee-joint, fracture of patella, &c.	" 18	Flap	"	"	"	Doing well.
7	John B. Rate	23	"	15 Va.	"	"	"	(Not ascertained).	" 17	Circular	" left	Sept. 30	Pyemia	Doing well; same ball cut off right middle finger.
8	Wm. H. Briggs	30	Serg't-major	15 "	"	"	Minie ball	Comminuted fract. of left femur.	" 17	"	"	"	"	Doing well.
9	Thomas Rudd	28	Private	32 "	"	"	"	Passed through right knee-joint.	" 18	"	Below mid.	"	"	"
10	McNeal	34	Lieut.	10 Ga.	"	"	"	Comminuted fracture of right femur just above knee-joint.	" 17	"	Middle	"	"	"
11	J. G. Tate	20	Private	53 "	"	"	"	Comminuted fracture of left tibia, extending into the knee-joint.	" 29	"	Low. third	"	"	Leg infiltrated with pus before amput'n, which operation should have been done immediately after the wound was received; prognosis doubtful.
12	J. B. Burnett	31	"	1 S. C.	"	"	Gr'pe shot	Comminution of left knee.	" 18	"	Middle	"	"	Some sloughing has occurred; he is now doing well.
13	F. M. Cantrell	30	"	7 "	"	Bad.	"	Comminuted fracture of tibia, extending into right knee-joint.	" 18	Flap	"	Sept. 25	Pyemia	Flaps sloughed.

TABLE II.—*Amputations of the Leg.*

NO.	NAME.	AGE.	RANK.	REGIMENT.	NATIVITY.	PREV. ILL.	MISSILE.	CHARACTER OF WOUND.	DATE OF AMPUTATION.	MODE.	POINT OF AMPUTATION.	DATE OF DEATH.	CAUSE OF DEATH.	PRESENT CONDITION, AND REMARKS.
1	Lawrence Smith	31	Serg't	10 Ga.	America	Good	Minie ball	Comminuted fracture of tibia and fibula, lower third, left leg.	1862 Sept. 18	Circular	Middle	....	....	Flaps partially sloughed; is now doing well.
2	M. J. O'Brien	31	Private	10 "	Ireland	"	"	Comminuted fract. of right tibia.	" 18	"	Upp. third	....	....	Flaps partially sloughed; is now doing well.
3	Wm. Tucker	21	"	13 Miss.	America	"	"	Left tibia and fibula comminuted near ankle.	" 17	Conical	Middle	....	....	Doing well.
4	W. T. Shell	24	Serg't	18 "	"	"	"	Right ankle-joint smashed.	" 18	Circular	Low. third	....	....	"
5	A. J. Farrar	19	Private	18 "	"	"	"	Left tibia and fibula comminuted.	" 18	Post. flap	Middle	....	....	"
6	B. F. Harwood	30	"	18 "	"	"	"	Right tib. and fib. comminuted.	" 19	"	"	....	....	"
7	D. P. Peckles	22	"	18 "	"	"	Shell	"	" 19	"	"	....	....	"
8	James O'Brien	30	"	1 Va.	Ireland	"	Minie ball	Left tibia comminuted.	" 19	"	"	....	....	"
9	W. J. Kidd	26	"	49 "	America	"	"	Left ankle-joint smashed.	" 17	"	"	....	....	Flap sloughed; recovery is doubtful.
10	W. H. Powell	20	"	3 S. C.	"	"	Grape	Right ankle-joint smashed.	" 18	Flap	Low. third	....	....	Doing well.
11	R. D. Crawford	27	"	6 "	"	Bad	Minie ball	Right tibia and fibula near ankle.	" 18	Circular	"	....	....	Entire flap sloughed off; now doing well, and will recover without doubt.
12	J. H. Barwick	20	"	6 "	"	Poor	Shell	Right tib. and fib. comminuted.	" 17	"	"	....	....	Flaps sloughing; line of demarcation well defined; will probably recover; strength improving, &c.
13	John F. Spath	28	Serg't	1 La.	Germany	Good	Minie ball	Right tibia and fibula near ankle.	" 18	Post. flap	Upp. third	....	....	Doing well.
14	J. R. Lawrence	33	Lieut.	1 "	America	"	"	Right ankle-joint smashed.	" 17	"	Middle	....	....	"
15	H. Robert	26	"	2 "	"	"	"	"	" 17	"	Mid. & up.	....	....	"
16	W. Dornscheid	28	Private	5 U. S. Artillery (Union soldier)	Germany	"	Shell	Left tibia and fibula comminuted below the middle.	" 19	Circular	Little above middle	....	....	Somewhat sloughing of flap; now doing well; will recover.

TABLE III.—*Amputations at the Shoulder-joint.*

NO.	NAME.	AGE.	RANK.	REGIMENT.	NATIVITY.	PREV. ILL.	MISSILE.	CHARACTER OF WOUND.	DATE OF AMPUTATION.	MODE.	POINT OF AMPUTATION.	DATE OF DEATH.	CAUSE OF DEATH.	PRESENT CONDITION, AND REMARKS.
1	J. M. W. Hardie	19	Private	17 Miss.	America	Good	Minie ball	Comminuted fracture of right humerus.	1862 Sept. 17	Flap	Shoulder-joint	1862 ....	....	Doing well.
2	J. L. Davis	20	"	2 S. C.	"	Bad	"	Comminuted fracture of left humerus.	" 18	"	"	Sept. 25	Pyemia	No attempt at union; no vital energy.
3	W. H. Harrison	46	"	Pey-ton's bat., Va.	"	Good	Shell	Left arm torn to pieces, &c.	" 18	"	"	....	....	Doing well.
4	W. C. Sansom	16	"	44 Ga.	"	"	Minie ball	Right humerus, comminuted fracture at head.	" 17	"	"	....	....	"



TABLE IV.—*Amputations of the Arm.*

No.	NAME.	AGE.	RANK.	REGI- MENT.	NATIVI- TY.	PREV- IOUS HEALTH.	MISSILE.	CHARACTER OF WOUND.	DATE OF AMPU- TATION.	MODE.	POINT OF AMPU- TATION.	DATE OF DEATH.	CAUSE OF DEATH.	PRESENT CONDITION AND REMARKS.
1	Wm. B. Wicker	21	Private	15 Va.	America	Good	Minie ball	Extensive injury of elbow-joint, brachial artery wounded.	1862 Sept. 22	Conical	Middle	1862 Sept. 25	Pycemia	This was a secondary amputation; the arm was entirely infiltrated with fetid pus before the operation.
2	L. B. Pursell	20	"	24 Ga.	"	"	"	Extensive injury of left elbow-joint.	" 23	"	Above mid.	" 30	"	Secondary amputation; arm infiltrated to wrist with putrid pus before operation.
3	Wm. Gibbs	25	Serg't	32 Va.	"	"	"	Passed through right elbow-joint. Left humerus comminuted.	" 18 " 18 " 17	Circular Ant. and pos. flaps Near shoul- der-joint Flap	Middle	....	....	....
4	John J. Bolter	26	Private	49 "	"	"	"	Through left elbow-joint.	" 17	"	Middle	....	....	....
5	G. G. Adams	17	"	10 Ga.	"	"	"	Right hum'us committed at mid.	" 18	Circular	Upp. third	....	....	....
6	J. N. J. Bram-	19	"	24 "	"	"	"	Left humerus, comminuted fract.	" 18	Flap	Up. & mid. third	....	....	....
7	J. T. Clark	27	"	24 "	"	"	"	"	" 18 " 17	"	Middle	....	....	....
8	Z. Hasland	18	"	53 "	"	"	"	Comminuted fracture of humerus above elbow-joint.	" 17	Circular	Low. third	....	....	....
9	G. P. Haw	23	Lieut.	15 Va.	"	"	"	Left elbow-joint comminuted.	" 17 " 17 " 17	" " 17 " 17	Middle Low. third Low. third	....	....	....
10	J. S. Malone	22	Private	13 Miss.	"	"	"	Right elbow-joint injured.	" 17	Flap	Upp. third	....	....	....
11	J. H. Smith	27	"	17 "	"	"	"	Right humerus fractured and arm lacerated.	" 17	Ant. and pos. flaps Lateral	"	....	....	....
12	W. P. Dulaney	18	"	18 "	"	"	"	Right humerus fractured and elbow-joint smashed.	" 17	Flap	Low. third	....	....	....
13	J. W. Pearson	22	"	18 "	"	"	"	Left radius and humerus com- minuted above and below el- bow-joint; arm was flexed.	" 18	Circular	Middle	....	....	....
14	W. Chaney	26	"	2 S. C.	"	"	"	Right humerus and elbow-joint smashed.	" 18	"	Upp. third	....	....	....
15	D. M. Kirkley	30	Corp'al	2 "	"	"	"	Left humerus comminuted at mid- dle.	" 17	Flap	Near shoul- der-joint	....	....	....
16	W. J. McDowell	24	Private	5 "	"	"	"	Right elbow-joint smashed.	" 17	Flap	Low. third	....	....	....
17	W. P. Castles	19	"	6 "	"	"	"	Minie ball	" 18	Circular	Middle	....	....	....
18	J. W. Martin	31	"	6 "	"	"	"	Right humerus and elbow-joint smashed.	" 18	"	Upp. third	....	....	....
19	Jos. Lehman	23	"	4 Texas	Germany	"	"	Left humerus comminuted at mid- dle.	" 17	Flap	Near shoul- der-joint	....	....	....
20	T. J. Richards	41	Serg't	9 N. H.	America	"	"	Right elbow-joint smashed and lacerated.	" 17	Circular	Mid. & low. third	....	....	Nearly well; on his way home. (Union soldier.)

TABLE V.—*Amputations of the Forearm.*

No.	NAME.	AGE.	RANK.	REGI- MENT.	NATIVI- TY.	PREV- IOUS HEALTH.	MISSILE.	CHARACTER OF WOUND.	DATE OF AMPU- TATION.	MODE.	POINT OF AMPU- TATION.	DATE OF DEATH.	CAUSE OF DEATH.	PRESENT CONDITION AND REMARKS.
1	James E. Dodd	34	Private	10 Ga.	America	Poor	Minie ball	Left wrist, bones comminuted.	1862 Sept. 18	Circular	Below mid.	....	....	Doing well.
2	J. C. Lowe	22	Serg't	13 Miss.	"	Good	Grape	Right wrist lacerated and comminuted.	" 17	"	Low. third	....	....	"
3	S. W. Rowan	18	Corp'al	2 S. C.	"	"	Minie ball	Right radius and ulna, comminuted fracture.	" 17	Ant. and pos. flaps	Upp. third	....	....	"
4	E. F. Hastie	23	Private	11 Ala.	"	"	"	Left radius and ulna, comminuted fracture.	" 17	Ant. and pos. flaps	Low. third	....	....	"

The whole number of cases of amputations, given in the above tables, is fifty-seven; the mortality, including two cases where the prognosis is noted as doubtful, amounts to eleven, the percentage being 19.47.

Of the lower extremities there are twenty-nine cases, of which eight were fatal, if we include the two cases of doubtful prognosis; the fatality being 27.58 per cent.

There are twenty-eight cases of amputations of the upper extremities, three resulted fatally, 10.71 per cent.

Of amputations of the thigh thirteen cases are given, seven were fatal, including one of doubtful prognosis, mortality 53.84 per cent.

Sixteen amputations of the leg are recorded with one fatal case, 6.25 per cent. This *fatal* case was still living (Case 8), it was by no means certain that he would die; should he recover, we would have sixteen cases of amputation of the leg, and no fatal result.

Amputation at the shoulder-joint was performed in only four cases, one died; mortality 25.00 per cent.

The arm was amputated in twenty cases, of which two patients died; 10.00 per cent.

The amputations of the forearm were all successful.

With regard to the "mode" of performing the amputations, twenty-nine were by flaps; viz., thigh four, leg nine, shoulder-joint four, arm ten, forearm two. The circular method was resorted to in twenty-eight cases; under this head are included the ordinary circular, and the more decidedly conical mode; viz., thigh circular nine, leg circular six, conical one (= 7); arm circular eight, conical two (= 10).

Of the twenty-nine flap operations, five were fatal, 17.02 per cent.

Of the twenty-eight circular operations, six were fatal, 20.68 per cent.

The four cases of secondary amputation were all fatal; it is quite probable that they would have recovered had the operation been done immediately after the receipt of the wounds.

The projectiles or missiles inflicting the injuries, as far as could be ascertained, were minie balls in forty-two instances, 75.00 per cent.; grape shot in seven cases, 12.50 per cent.; fragments of shell in six, = 10.71 per cent.; musket ball in one, 1.78 per cent. In thirty of the cases joints were directly implicated (54.54 per cent.); viz., knee-joint eight, ankle-joint five, shoulder-joint one, elbow-joint fourteen, wrist-joint two.

In several other cases, the injury is recorded in the tables as a comminution of the bones near the joints. In all the cases of amputation a serious lesion of one or more bones had resulted from the projectile, in no case had the operation been done without the most imperative necessity.

In the fifty-one cases where it was ascertained which side of the body received the injuries, twenty-eight were on the right side; viz., six of the thigh, ten of the leg, and fourteen of the upper extremities.

In twenty-three cases the injury was received on the left side; viz., thigh five, leg six, upper extremities twelve.

The nativity exhibits fifty-two Americans, three Germans, and two Irish.

In reference to ages, the youngest soldier was sixteen years of age, the eldest forty-six. The number less than 20 years of age was ten, from 20 to 30 years thirty-two, from 30 to 40 years thirteen, from 40 to 50 years two.

In regard to rank, fourteen were officers; viz., five lieutenants, seven sergeants, and two corporals; the remaining forty-three were privates.

Pyæmia is recorded as a cause of death in eight cases.

Chloroform was used in all the cases.

Of the fifty-seven cases of amputations, twenty-five were done September 17th, the day on which the battle occurred, most of them at night, only one case proved fatal.

Sept. 18, twenty-four amputations were made, three of which were fatal.

Sept. 19, four amputations, two fatal cases.

Sept. 20, one amputation; doing well.

Sept. 22, 23, and 29, one amputation each day, the first two fatal, and the third probably so.

It is proper to state, that great care was taken to obtain and include the histories of all the fatal cases that had occurred from amputations after the battle, at all the houses where the statistics were collected. The writer was particular in his personal examination of all the stumps, and in his observations as to the vital condition of the patients, and in all doubtful cases to consult with the surgeons in charge in reference to the prognosis. Wherever, in the remarks included in the tables, the patient is said to be "doing well," it is confidently believed that he will recover.

It may be urged, as an evidence of the entire want of value of the above tables, that the facts were collected too early in the history of the cases, that many cases, from a variety of causes, would terminate fatally after the sixteenth day from the date of operation. The writer is aware of this objection, but being unable to remain longer with the patients, he was compelled to prematurely collect the materials to rescue the facts from entire loss. He thinks, however, that at the end of sixteen days the *tendency* to recovery or death ought to be quite definitely determined, but his chief apology is, as elsewhere mentioned, that the materials were arranged and published with a view to illustrate a uniform plan of reports, rather than for their intrinsic value.

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ART. IV.—*On Trismus Nascentium.* By GREENSVILLE DOWELL, M. D.,  
Columbia, Brazoria County, Texas.

My attention was first drawn to the pathology of trismus nascentium, by the paper of Dr. Sims, formerly of Montgomery, Ala., now of New York, published in this journal. (See Nos. for April, 1846, July and Oct. 1848.) That writer adduced a number of cases to show that the disease resulted from compression of the brain caused by the overlapping of the



bones of the cranium. An opportunity was soon after afforded me, in Panola County, Miss., where I then practised, of testing the correctness of these views. I was called to a case on the plantation of Mrs. H., in which there was evidently displacement of the occiput, and I immediately determined to try Dr. Sims's practice. I placed the child on its side on a pillow, and changed it from one side to the other. I directed its bowels to be moved with sweet oil, and in a few hours the spasms subsided, the child could nurse, and in a very short time it was quite well, and is, I believe, now living. This was the first case of the disease I had ever seen recover; and Mrs. H., who was a very intelligent lady, the widow of a physician who had practised many years in Georgia, told me that this was the first case she had ever seen recover, and that she had lost many negro children with the disease, both in Georgia and Mississippi. The disease was quite common amongst the blacks in Panola County, but I never saw a case amongst the whites while I practised in that section. The success in this case quite elated me. In the next I was called to I adopted the same treatment, but could not discover that there was any displacement of the occiput or parietal bones. The treatment failed, and I made a post-mortem examination, but could not discover any organic or mechanical injury about the head. The umbilicus was well healed, but there was dark blood in the umbilical vein, and a yellowness around the navel. The liver was congested, and the gall-bladder filled with dark thick bile. The bowels were empty, and apparently entirely healthy.

This case led me to think that the primary cause of the disease was in the umbilicus, and brought on by congestion of the liver, induced by coagulation of the blood in the umbilical vein. Several times since I have found these changes in post-mortem examinations, and am free to declare that the majority of the cases I have met with have been of this character. The only case in a white child I have seen in this county was of this character, and as the case is an interesting one I shall give the particulars of it.

Mrs. S., the wife of an overseer, was taken very suddenly in labour, and as I lived some nine miles distant, they sent for a very intelligent negro midwife, but the child was born before she got there; the placenta was thrown off with the child. She cut the cord about six inches from the umbilicus, and wrapped it with a tape string up to the umbilicus. The umbilical cord came off at the usual time. About the eighth day the child refused to nurse, and spasms came on, and with each spasm there was hemorrhage from the umbilicus. They sent immediately for me. I tried to stop the hemorrhage with nitrate of silver, but to no effect. I then put two needles through the base of the umbilicus, and a ligature beneath them. This stopped the hemorrhage for a while, but it returned in about four or five hours. By tightening the ligatures the hemorrhage was kept down, but the spasms continued to return, and finally the child starved to death, though the spasms were sufficient to kill it.

Other cases which have come under my observation I have thought were

brought on from the irritation of the meconium ; the children of this class not having proper attention. The bowels in these became distended, and when they were moved by medicine, the discharges were frequent and too watery. Finally, the child would not suck, and spasms followed. Another cause, it appears to me, has been the neglect, on the part of the nurses, of cleansing the body and head of the child at birth. This becomes a source of irritation, ultimately producing congestion of the brain and spasms. Some of our physicians think that there is a hereditary or constitutional tendency in the children of some mothers to take on this disease. We know that some mothers lose all their children with it. So much imbued are many of our planters with this notion, that often they tell the midwife if they can save such children they may have them. All such cases that have come under my care have been saved by the plan I shall presently describe for their treatment. With all my past experience and observation, I have come to the following conclusion :—

1st. That the disease is produced most frequently from improper management of the cord, and congestion of the blood in the umbilical vein ; from this vein congestion spreads to the liver, and it becomes swollen and filled with dark blood, and the secretion of bile is entirely arrested.

2d. The next most frequent cause is the displacement of the occipital bones in parturition. We may always look for this cause in protracted labours.

3d. The retention of the meconium, and want of proper cleansing of the skin when the child is first dressed.

4th. And lastly, it may be produced from any cause that will produce tetanus in old persons. Cold, exposure to drafts of cold air ; foul odours, such as emanate from old bedclothes, saturated with urine and besmeared with feces, which are often to be found in our negro cabins, when the masters are not particular to make the tenants wash and clean out their houses. Negroes often go to sleep and let their children fall or overlay them, which also brings on the disease. I believe I have seen it produced from all these causes.

The symptoms vary but little in this disease. Let it be produced from any one of these causes, the first symptom is a want of power in the child to nurse, or a disinclination, most generally ; they will feed from a spoon, when they cannot suck.

It is almost sure to come on between the fifth and twelfth day after birth, generally about the ninth day ; though it may occur any time within six months, and some think even within two years. I have not known any to occur at so late a period, and but one or two cases after thirty days. I always consider the child safe from the effects of mismanagement of the umbilical cord, if they live three weeks (Dr. Morris says fifteen days), never having seen a case that appeared to me to have originated after that time, from this cause. Those that occur from displacement of the occiput may

occur at any time within two years, as many negro children are left for three or four hours in one position, generally on the back. Often all the hair is rubbed off, and the body is confined in a small cradle with scarcely room to turn over. These boxes are very objectionable, and I always endeavour to prevail upon the parties to entirely banish them. I much prefer that the child should be laid on the floor, with only a blanket, than placed in the cradles in use by most of our negroes.

The spasms are various; sometimes only partial and scarcely perceptible, and at other times general and very severe. The abdominal muscles are contracted in nearly all cases during the spasms; in some cases one side alone appeared to be affected, and the muscles of that side of the face drew the mouth to one side in a most frightful manner. In most cases the hands are clenched all the time. The patients cry but little, but appear to suffer much when moved or handled.

Fever is occasionally, though not usually present; its occurrence indeed is the exception to the general rule. The tongue is generally coated with a white or brown fur.

When called to one of these cases, my first object is to ascertain from which of the causes enumerated the attack had originated. I begin my investigations with the head, as described by Dr. Sims, by examining all the sutures, to see if there is any overlapping, or if any of the bones are movable. If pressure on any one of them produces uneasiness or spasms, I press gently on the fontanelle, and if the disease is produced from the misplacement of any of the bones of the cranium, it will give the patient pain, and often produce a spasm. I press my finger gently on all the sutures, to see if the two edges meet, and that the head is smooth, and no thrombus or any perceptible misplacement. Should there be any, I immediately place them according to Dr. Sims's plan—on a soft bed: if the occiput is at fault, *on the side*; if the parietal, *on the back*. I direct them to be held to the breast on a pillow; do not allow the arm to be put under their head, as they are usually nursed; order them changed at least every two or three hours, whether asleep or awake. I have the bowels moved with sweet oil, and have them fed with a spoon sufficiently only to keep up their strength.

In those cases occurring from the umbilicus, I would rub the abdomen with an ointment of the iodide of mercury, gr. x to 3j of lard, and give from one to five grains of calomel internally. I frequently have tried to control the spasms with a watery solution of assafoetida, made by pouring warm water on chipped assafoetida. This seemed to me to do good in some instances, and had a better effect than anything I have yet tried. The preparations of opium do no good; but stupefy the patient, and hasten its death. I use warm mustard baths in all cases, and nearly always with present relief to the spasms. I have blistered the umbilicus, but with no benefit.



Where the disease originates from any other cause, it should be found out and removed. If the skin is not entirely clean and all the dandruff gotten out of the hair, this should be done immediately, and the bowels moved with sweet oil or the calomel as in the last case. When they have fever, I never fail to give quinia, and generally with improvement of symptoms. I have cured a well-marked sore with calomel followed by quinia and assafoetida and mustard bath. I have several times blistered the spine; but to no effect. In nearly all cases I have used some liniment to the spine—generally sweet oil, ammonia, and turpentine—not strong enough to blister, as this interferes with the mustard bath, in which I have more confidence.

It is the general opinion of our physicians that after the spasms commence nothing can be done, and in that opinion I must concur. I have seen but three cases recover under any and all plans hitherto tried—the case related, and two others cured by the plan suggested above. I have relieved many cases, after they had refused to suck, by this plan, and I can speak of its efficiency with confidence. Our physicians are not often called until the case is hopeless, but I have lived nearly all my professional life on a plantation where there were from thirty to one hundred and fifty negroes, who were especially under my care, and it was my instruction to the lying-in women, as soon as their children would not nurse, to bring them to me. In that way I have cured many. Some with slight twitchings of the muscles have recovered without any trouble, by being put in a mustard bath, washed clean, and put in a clean and well ventilated cabin. I have tried ether and chloroform, but with no success.

Our main reliance is in prevention. Nearly every physician has his own method of treatment, and I will give mine, which I respectfully submit as appearing to me to be the most efficacious.

My first object is to have the house of the patient and all the bedclothes clean; and when this has not been previously attended to, I have it done as soon as convenient. Not more than four persons should be allowed to be in a cabin, and I would prefer only the nurse and husband to be there. As soon as the child is born and it has breathed, I tie two ligatures around the cord, the first at such a distance from the umbilicus—*say about half an inch*—as to give me a chance, should I not tie it tight enough, to put another between this and the umbilicus. The other ligature I put about an inch from the first, and cut the cord between them.

It has been the custom with our negro midwives, especially the Africans, to tie the cord about four or five inches long, and to coil it around on the abdomen. Most of them cut it about two inches long, so far as I know. And here I will mention a fact told me by Dr. S. A. Towsy:—

Several years ago he was employed to attend to the plantation of negroes now owned by Col. S., of this county, who are mostly Africans brought to this county before annexation. He had been told that they

lost all of their young children with this disease, and that the owner's intention was to see if he could not save them. That year there were born on the place thirteen children, and he attended eleven. The eleven he attended lived and did well; the other two died with this disease. He saw one of them with the disease, and, upon examination he found that the cord had been left some ten or eleven inches long, and was wound around in a coil upon the abdomen. There was tenderness over the liver and bowels, indicating that the disease originated from that source. He inquired of the midwife if that was the way she dressed all her children, and she said it was, and that they all died in the same way, and about the ninth day.

After cutting the cord, I have the child put in a tub of warm water, washed perfectly clean, head and body, and then I cut out a hole in a piece of soft linen and wrap the end of the cord in burnt cotton, and fold the linen over the cord and cotton, and then put the middle of the bandage over this, and pin it on the back. I have the bandage tight enough to prevent its slipping or moving about, but not to give pain. In this situation I recommend it to be kept for five days, noticing the bandage to see if there is any hemorrhage. I then direct the child to be carefully nursed, and not to be left too long in one situation; the head to be kept cool, and without any caps.

Under this plan I have not lost a single case that I have had special charge of. This is the experience of all those who have followed this plan or a similar one. A practitioner of our county gives half grain doses of calomel from birth, twice or three times a day, for nine days. This I think very objectionable, and, though calomel is good, where there is fever and a derangement of the digestive organs it should be given with judgment and caution. But I think this plan itself would often bring on the disease; and as the disease is more common in his neighbourhood than in any other portion of the county, I am inclined to believe it is from this cause. It has not been so frequent in the last two years as formerly. The obtaining of physicians in such cases more than before, and the improvement in their management, I think is the reason.

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ART. V.—*Tracheotomy for the Removal of Foreign Bodies from the Air-Passages. With Cases.* By A. G. WALTER, Surgeon, Pittsburg, Pa.

SURGICAL operations, so dreaded in general, lose much of their terrors in cases where a foreign body having entered the air-passages, strangulation is imminent and delay is manifestly fraught with danger. Not only is consent to operative measures readily obtained, but often urgently demanded by the sufferer.

Tracheotomy though comparatively simple in its performance, and generally harmless in its consequences is not only too often neglected, but even too long delayed for the safety of the patient and the credit of the practitioner. Although the advance of modern surgical pathology has considerably lessened the frequency of operations, [yet, with regard to foreign bodies impacted in the air-tubes, the rule must ever be that the knife should be early used as the most certain means of relief. The following cases but confirm the soundness of this time honoured practice.

CASE 1. John McCarty, of Pittsburg, aged six years, of good constitution, while playing with a *pebble* in his mouth, swallowed it as he supposed; violent convulsive efforts of coughing immediately followed. Emetics and purgatives were resorted to in order to dislodge the offending body from the stomach. The idea that it had entered the trachea being ridiculed by the medical attendant, and as some cessation of the violent fits of coughing occurred after some days, the parents were disposed to believe that the stone would eventually be removed by the natural channel. The respite, however, was of but short duration; paroxysms of coughing again became frequent, threatening suffocation, and the boy rapidly lost flesh and strength from fever and profuse expectoration. Three weeks after the accident had occurred, I was requested to see him. On examination of the chest by the stethoscope no unusual sound was heard in the right lung, while in the left loud mucous rales were present; during a fit of coughing a solid body was distinctly heard to move up and down; when it reached the larynx suffocation became imminent; on its descent it appeared to enter the right bronchus; there was hectic with night-sweats, continued restlessness and disturbed sleep. Convinced of the presence of a foreign body in the windpipe, I urged its immediate removal by operation; to this, with some difficulty, the parents consented, as they were led to believe that under no circumstances could anything by accident enter the larynx guarded as it was by the epiglottis as a safety valve. Having removed this false impression, I had recourse to Sir Benjamin Brodie's plan of inverting the body of the patient, but without benefit, the stone being too large to pass the highly irritated glottis. On April 6th, 1854, assisted by Dr. Guenote, the trachea was opened to the extent of three-fourths of an inch in the median line below the crico-thyroid cartilage, the skin and cellular tissue having been previously divided, and the free bleeding having been arrested by cold and compression (no ligatures being required). On the interior of the windpipe being opened a violent paroxysm of coughing ensued, throwing up a large quantity of ropy mucus, closing the aperture and threatening suffocation; this being speedily removed and the lips of the wound being held asunder, mucus was freely ejected by coughing and with it an oval-shaped pebble of the size of a large bean was forcibly projected through the aperture. The relief was complete, and the paroxysm of coughing ceased. The lips of the wound having been cleansed of blood and mucus were approximated and retained by adhesive plaster, with the exception of its lower angle, which was left open to allow a free exit to secretions from the trachea. Considerable febrile reaction following, a vein was opened in the arm during the evening; with gentle antiphlogistics and proper regimen the case progressed favourably. The fever subsided, the cough ceased, sleep soon became natural and appetite returned; on the 4th day the patient left his bed, by the 10th day the wound had perfectly closed.



CASE 2. Chas. Fichtar, of Alleghany City, aged 16 years, was, while eating *chestnuts*, suddenly seized with a paroxysm of coughing and hoarseness. Suspecting that a portion of the nut was lodged in his throat, a probang was passed into the œsophagus by a practitioner. Relief was not obtained; various remedies were next prescribed to allay the cough, but without avail; the distressing symptoms still continued, the cause not being recognized. Fever, with loss of appetite and disturbed sleep, soon became superadded. It was now evident from the history of his case and continuance of distress that a part of the nut or shell had entered the larynx; the patient and his friends agreeing in our opinion readily consented to the operation. On July 12th, 1854, the trachea was opened to the extent of an inch, all bleeding having been previously arrested. As usual on the sudden entrance of air through a wound in the trachea, violent fits of coughing ensued, arresting momentarily examination of the interior of the larynx by forceps or probe. Every attempt to introduce either increased the spasmodic efforts at coughing. After some minutes' rest, the head of the patient being raised and the lips of the tracheal wound being held apart by blunt hooks, a small bent polypus forceps was gently introduced upwards into the larynx, from whence, after much careful exploration, half the shell of a chestnut was removed with instant relief, the fits of coughing immediately ceasing. The edges of the wound were next brought together and retained by adhesive plaster, over which water dressing was applied. During the evening a free bleeding from the arm controlled the vascular excitement which ensued, after which the case progressed favourably, the hoarseness soon subsided, and by the end of the 2d week the wound had closed.

CASE 3. Peter Frazer, of Pittsburg, aged 25 years, a labourer, was, while taking some meat soup, almost suffocated, a piece of *bone* having entered the larynx. The cough, as usual, was very distressing, accompanied with hoarseness and the sensation of a foreign body sticking in the throat. Emetics were tried; the probang passed into the esophagus repeatedly, and various remedies prescribed by his physician, extending over a period of two weeks; when, finding no relief, he sought admission into my hospital. There was then a teasing, laryngeal cough, with fever, restlessness, and frequent feeling of strangulation. Relief being urgently demanded, the trachea was opened without difficulty on the 16th of December, 1854, and with little loss of blood; a probe detected the solid body in the larynx, but the attempt to seize it with a bent polypus forceps was repeatedly frustrated by the violent efforts of coughing, which the introduction of the instrument excited. After some delay it was grasped and removed. It proved to be a sharp-pointed bone, three-quarters of an inch long, and one-sixteenth inch broad, which had lodged obliquely across the larynx. The relief to the patient was immediate. The wound was brought together by adhesive plaster, over which water dressing was applied. Venesection was had recourse to in the evening to allay inflammatory fever, after which no untoward symptom occurred; the cough and hoarseness subsided, and in sixteen days the wound had closed.

CASE 4. Jacob Steel, aged six years, of Alleghany City, was suddenly seized with violent fits of coughing, threatening suffocation, but unable to tell his parents what had happened, it was difficult to ascertain the cause. It was, however, discovered that a piece of *slate pencil* had by accident lodged in the windpipe. The probang, emetics, and other remedies were

resorted to without relief for some days. On the fifth day after the accident I was requested to see him. By the aid of the stethoscope, a foreign body was distinctly heard to move up and down during the efforts of coughing. On the 27th of April, 1855, assisted by Dr. Lusk, I opened the trachea to the extent of three-quarters of an inch. The struggles of the patient, the convulsive fits of coughing, and profuse flow of mucus from the wound, caused some delay; but after comparative quiet was restored, the patient was raised to a half-sitting posture, the wound cleansed and its edges held apart by blunt hooks, when a sudden fit of coughing brought the pencil into view; it was immediately seized and removed with safety. The wound was dressed as usual, an outlet being left at its lower angle; water dressings and antiphlogistic regimen constituted the treatment. In six days the patient left his bed. In two weeks the wound had closed.

CASE 5. Michel Fritz, aged 60 years, of Alleghany City, a cabinet-maker, of low stature, strong frame, large muscular development, and short neck, applied on account of a distressing cough and hoarseness of four weeks' standing. The history of his case was as follows: While playing with his child seated on his knee, he threw a *copper cent* repeatedly into his mouth, which suddenly disappeared, causing a feeling of choking, with violent coughing. Supposing the cent was resting in the throat, he ate bread and drank water, without, however, at all relieving the paroxysms of coughing; and though the cough brought on free vomiting, he became hoarse and unable to speak above a whisper. After some days, the violence of the cough subsided, as if he could not cough for want of breath. He feels as if the larynx was obstructed with something, and soreness is complained of in the part on pressure. His voice is feeble and croupy, and respiration oppressed but not accelerated. Respiratory murmur feeble, percussion normal, pulse 80. Feels chills and flashes of heat, sleeps badly, prefers the half-sitting posture in bed; is thirsty, has no appetite, and suffers from night-sweats. No mucous rales in the bronchia, nor expectoration. On passing a probang with a small piece of sponge attached into the esophagus, no difficulty was experienced; but on withdrawing, it seemed to be arrested, behind the larynx, by some projecting body, which offered considerable obstruction to its removal. It was difficult to persuade him that the cent had found its way into the larynx; fancied it had passed to the stomach, and would be ultimately expelled by the bowels; has been told so by his medical attendant, and the hoarseness and cough treated as a cold; but as no mitigation of his distress has been obtained by such treatment, his friends, with better judgment than his physician, insist that it must be in his windpipe, and urge him to seek admission into our hospital. I felt little difficulty in deciding, from the history of the case, from the obstruction in withdrawing the probang and the other general symptoms, that his was a proper case for tracheotomy. Accordingly, on the 16th of March, 1856, four weeks after the occurrence of the accident, the operation was performed in presence of Doctors Hageman and Pillichody. The neck being short and plump, the integuments and deep-seated parts gorged with blood, much difficulty was anticipated during the operation. The patient being placed in a half-sitting position, with the chin well raised, an incision was made from below the cricoid cartilage to the sternum, in the median line, through the skin and cellular tissue, which were unusually loaded with fat. The edges of the incision being held apart, the sterno-hyoid and sterno-thyroid muscles were separated from their fellows by slight touches of the



knife and a probe. Having arrested the profuse bleeding by cold and compression, and removed the thick layers of fat found above and beneath the deep fascia of the neck, the arteria thyroidea ima was seen running in front of the trachea, a small branch of which having been cut had to be ligatured. From the shortness of the neck and the quantity of fat, the depth of the wound was nearly one and a half inches. The trachea being thus exposed, the tissue immediately covering it was removed by a probe, the artery carefully held aside, and the trachea was then pierced by the knife, and four of its rings divided in an upward direction. They were found rigid, from commencing ossification. Immediately on opening the trachea, violent coughing ensued with profuse bleeding, both from the wound and from the congested mucous membrane. The patient had to be raised, the edges of the wound held apart to allow free egress to the blood from the trachea, and the breathing to become quiet. This being accomplished, the trachea was sounded by a flexible urethral sound upwards and downwards, which provoked renewed fits of coughing, with bleeding and a feeling of strangulation. Respite from coughing being again obtained, the exploration of the larynx was made with a bent polypus forceps, when the cent was detected in the larynx, the edge forwards, tightly enclosed by the swollen mucous membrane. On being seized, the forceps slipped, though moving it somewhat from its situation. At this moment the patient was well nigh strangled. After a short pause, in a further attempt, I succeeded in grasping the cent firmly and removing it, but not without considerable force. I, however, held it preferable to bring it down and extract it by the tracheal wound, notwithstanding the force required, rather than attempt to force it upwards by the glottis. Such a course being likely to lacerate the chordæ vocales glottis or mucous membrane, or even rupture the larynx. The patient, now finding himself relieved, was much rejoiced, and, looking at the offending body, exclaimed, that it was a costly and dearly-bought cent to him. A pledget of lint being laid in the lower angle of the wound, to favour the escape of secretions from the trachea, the edges were approximated and retained by adhesive plaster. He was placed on his side in bed, and water dressing applied; his cough continued teasing for some time, but gradually subsided; his respiration becoming more free, and his countenance calm. In the evening, his pulse becoming full, a free bleeding from the arm with strict antiphlogistic treatment was prescribed. On the following day, a further venesection was found necessary, the pulse being full and rapid; pain in the larynx, with sonorous breathing, the voice hoarse from the swollen condition of the mucous membrane; the blood was highly inflammatory. Ordered a continuance of the antiphlogistic treatment. The case from this forward progressed favourably; the voice improved, and some expectoration followed coughing. The wound suppurred kindly, and was closed by the end of the second week, when the patient left the hospital free of cough, and his voice restored to its former healthy and natural state.

This case is remarkable, and full of interest, and will long remain a solitary one in the annals of surgery. There could be no doubt (from the history and symptoms) that a foreign body had lodged in the larynx, still there was some hesitancy in admitting that so large a substance as an *American copper cent* could pass the rima glottidis and enter the cavity of the larynx. Considering, however, the laxity of the tissues in the aged, the volume and



force of a current of air in sudden inspiration during the act of laughing, and the great capacity of the air-passages in some persons, the case will no longer appear surprising. The entire absence of secretion in the trachea, or mucous râles in the bronchia, where a foreign body so long occupied the larynx, seemed strange, and can only be accounted for by its being of a smooth surface and firmly fixed in its situation, its presence was the less felt by the trachea. In addition to the abnormal artery traversing across the trachea, and which in a less careful dissection must have been wounded, both radials were found bifurcated high above the wrists.

CASE 6. Mary, infant daughter of Robert Hanna, of West Deer Township, Alleghany County, aged thirteen months, was, in May, 1857, brought to our hospital, a *roasted coffee bean* having lodged in the windpipe some twelve days before; the child was seen to convey it to the mouth, when it suddenly disappeared. She instantly began to cough with a croupy sound, but did not appear to strangle. The cough continued in spells; she became feverish and restless; a week later, on two occasions, while coughing, she was nearly suffocated. On examination of the chest, bronchial râles were audible over both lungs; the presence of the bean seemed to interfere but little with respiration; it could be distinctly heard to move up and down the trachea during the fits of coughing; the pulse was accelerated; sleep short and disturbed. On May 27, assisted by Drs. Henderson, McGrath, and Pillichody, I made an opening into the trachea to the extent of five-eighths of an inch, with little loss of blood; a violent fit of coughing ensued. On its subsiding, a female catheter was introduced by the wound through the larynx, exploring its cavity into the fauces, but no obstruction was detected. The efforts at coughing were very violent, during which the child was nearly strangled, became purplish, and ceased to breathe, the bean having momentarily obstructed the ingress of air. By promptly lifting the child up, turning its head downwards and slapping on its back, the foreign body became displaced and respiration restored. The edges of the wound being held apart with blunt hooks, during a fit of coughing the bean appeared in sight, was instantly seized and removed. Relief was immediate; the cough subsided; she took the breast with ease, and slept better. The voice remained for several days hoarse. The wound inflamed, and though carefully approximated, opened during the fits of coughing, and owing to the strumous constitution and the escape of milk through the opening during the act of nursing, the closing of the wound was tedious. Dentition also added its irritation and increased the vascular excitement, to allay which venesection, with local depletion by leeches applied to the head and throat, and other antiphlogistics, were had recourse to. By strips of adhesive plaster encircling the neck, the edges of the wound were kept in close apposition, and after three weeks were united; a week later the wound was cicatrized, the cough had disappeared, and recovery being complete, the patient was taken home.

CASE 7. John Adams, of Pittsburg, aged four and a half years, a healthy boy, was, while eating *sugared corn*, suddenly attacked with croupy cough and strangulation, which lasted, with short intermissions, for several hours. The parents and their friends felt certain that a corn had entered the windpipe, but a practitioner who was called in ridiculed the idea of anything

being able to enter the windpipe, and treated the case as a catarrh. Six weeks were spent in fruitless efforts to relieve the child by remedies for croup, catarrh, and bronchitis, the physician continually representing the case as free from danger, and quieting the apprehension of the parents. At length, tired of his services, I was requested to visit him, on the 20th of January, 1851. From the history of the case, the obstinately harassing croupy cough, the hectic fever, with night-sweats, loss of appetite, emaciation, rapid small pulse, quick respiration, profuse ropy expectoration, disturbed sleep, with the head raised by pillows, it was evident a foreign body occupied some portion of the bronchia. On examination I found entire absence of respiratory murmurs in the left lung, with dulness on percussion, while the right lung was normal. The head was bent forward and cannot be raised without causing pain in the trachea. The corn was lodged evidently in the left bronchus, and softening with the surrounding moisture lay impacted with little hope of its being dislodged. Hopeless as the case appeared, still no alternative was left to reach the offending body but by opening the trachea. The parents being apprised of the necessity as well as the uncertainty of the operation, in this particular instance, eagerly desired to have it performed, however small the chances of saving the child might be. Kindly assisted by Drs. Gazzam, Murdock, and McDonald, the trachea was opened; the bleeding was considerable. During the paroxysms of coughing and the struggles of the patient, the lips of the wound being held apart, an elastic sound was passed upwards through the larynx into the fauces. No obstruction being met, it was allowed to slide downward towards the left bronchus with the view of dislodging the corn; the body too was inverted, the back repeatedly slapped, but all efforts failed in dislodging and expelling the body. Convinced that it had become impacted in the bronchus by becoming swollen, we contented ourselves with keeping the windpipe open with a wire spring. Some relief was thus afforded the little sufferer, respiration became less hurried, pulse less frequent, and the cough less troublesome. The respite was, however, of short duration; the croupy cough continued, with profuse ropy expectoration, which soon became highly offensive. Emaciation and restlessness increased, the lips of the wound assumed a pale colour, and gaped. Diarrhoea set in, with ascites and general œdema, and death closed the scene three weeks after the performance of the operation. Anxious to verify our diagnosis, a post-mortem examination was readily obtained, twenty-four hours after death. On opening the chest, the right lung and pleura were found normal; on the left the pleura pulmonalis et costata were adherent throughout their entire extent. The lung was congested, enlarged, and the air-cells filled with depots of purulent matter. The pericardium was distended with serum; the bronchi were filled with ropy mucus; the larynx natural, but the trachea and left bronchus were inflamed. In the latter was found a red corn, softened, and firmly wedged in, completely shutting up the bronchus. The examination having fully verified the diagnosis, it next elicited our regret that science should have been so outraged by one of its votaries in dooming a healthy child to death, whom prompt surgical treatment would have restored to health.

We hope no apology is needed for laying before the professional reader the foregoing cases. The report of cases conveys much instruction; they are the landmarks for the young practitioner, which enable him to act with

promptness and confidence in cases of emergency, though individual experience be wanting.

Tracheotomy is, in general, a simple operation; the division of the skin, cellular tissue, and superficial fascia is easy enough. The reaching of the median line of the trachea between the muscles alone may require caution, as bleeding and struggling will obscure the field of operation. To miss this median line and cut the muscles is embarrassing to the young surgeon. Not much difficulty is met with in incising the trachea, yet occasionally the operation may become harassing to the surgeon from the struggles of the patient, the shortness of the neck, the deep situation of the trachea in children, the convulsive paroxysms of coughing and fits of strangulation which take place on the interior of the windpipe being exposed to the external air.

Temporary strangulation, or even death, may occur at the moment when success seemed certain, from the foreign body becoming impacted in the lower portion of the tube, completely arresting the ingress of air in such circumstances. Inversion of the body, with shaking and slapping on the back, or the speedy introduction of a sound or forceps down to the bifurcation, will be the most efficient means of relief.

The after-treatment of tracheotomy must be strictly antiphlogistic, free and repeated bleeding, general or local, or both, according to circumstances, to control inflammatory tendencies, and remove congestion of the mucous membrane of the air-passages. The administration of anæsthetic agents would be, if not improper, of very doubtful propriety in the cases under consideration, as tending to shut off from the lungs the necessary supply of oxygen, already too limited, by the presence of the foreign body. Moreover, the efforts of the patient are useful, in fact needed, to expel by coughing, or snore, the substance into the opening for its removal.

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ART. VI.—*A New Method of Performing Tracheotomy, with two Illustrative Cases.* By J. H. BILL, Asst. Surg. U. S. A.

It is acknowledged by operators that tracheotomy is sometimes one of the most difficult operations in surgery, taxing the coolness, skill, and knowledge of the surgeon to the utmost extent.

The parts involved lie so deeply, are so surrounded by important vessels, are so plentifully supplied with veins, are so mobile in themselves, that even supposing perfect docility on the part of a patient, the operation may be of very difficult execution. Moreover, in no case is it an operation that can be done hastily, and at the same time with safety; and yet circumstances often demand that it should be performed without a moment's delay.



We propose in this article to offer a method to the profession which we believe greatly reduces the danger of the operation, and certainly renders its rapid performance both safe and easy.

What are the dangers attendant on tracheotomy as an operation? They are two in number. The danger of opening a great vessel at the root of the neck, and the danger of hemorrhage into the trachea from wounded tracheal or thyroid veins.

The first of these dangers may be converted into a reality by an incautious downward or lateral extension of the incision, or owing to the unsteadiness of the trachea and the slipping and rolling of this under the point of the knife. The latter accident may arise from over anxiety to open the trachea before the hemorrhage from the thyroideal and other tissues has been checked.

Feeling the necessities of the case, and the difficulties and dangers attendant upon the operation, the writer, several years since, devised a modification of the old method, and he has, by two trials on the living subject, as well as by numerous repetitions of these on the cadaver, reason to be perfectly satisfied with the operation proposed.

Fig. 1.

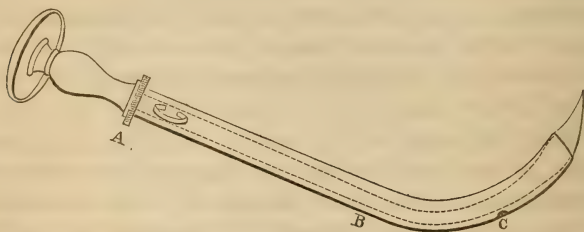


Fig. 1 represents the instrument employed of one-half the required size. It is, in fact, a trocar and canula of peculiar shape. The canula presents an elliptical section; the point of the trocar is shaped like the point of an ordinary curved bistoury, blunt on the back. The instrument is provided with rings at A, to serve as handles for manipulation. That portion of the rod of the trocar lying between B and C, is smaller than the rest, and has a watch-spring temper. There is a fenestra at C. The canula is silver, the trocar steel. Such is the instrument. The operation proposed is the following:—

Make an incision through the crico-thyroid membrane parallel to the crico-thyroid arteries. Having sheathed the spear point of the trocar within the canula by partly withdrawing the former from within the latter, pass the open mouth of the canula through the incision so made, and carry the instrument as far downwards as is considered safe or necessary, the convexity of course looking towards the œsophagus. When this point has been reached, depress the ring handles of the canula towards the patient's chin. By so doing the mouth of the canula is elevated, and also

with it the anterior wall of the trachea against which it has been pressing. The great vessels are now of necessity behind and to the outside of the ordinary line of incisions; and these can be in no danger whatever when we push the handle of the trocar into its place, and so protrude the knife edge through the canula, and through all the tissues lying in front of this. The whole instrument is now to be pushed on, until the mouth of the canula has made its way through the skin, and then the stilet being withdrawn the patient is allowed to breathe temporarily through the canula by means of the fenestra at c. If the operation was undertaken for the removal of a foreign body, we should now proceed regularly to work as in ordinary operations, making incisions through the skin and fascia of one or two inches in length, separating the muscle and securing all tissues each side of the intended incision through the trachea, by passing underneath them bent needles, and twisting a thread over these in the manner of the interrupted suture. All this done, introduce a probe-pointed bistoury into the mouth of the canula and the lip of the incisions, through skin, fascia, and the muscles being held asunder by blunt hooks, carry canula and bistoury carefully upward until three or four tracheal rings are divided. Then remove the bistoury from the canula and withdraw this latter from the wound within the crico-thyroid membrane. The search for the foreign body may now be instituted with perfect safety.

If the operation was undertaken for another purpose than the removal of a foreign body, a different plan is recommended. After withdrawing the stilet from the canula take a tracheotomy tube that will just fit tightly in the mouth of the canula, and, having adjusted them relatively in this way, slowly withdraw the mouth of the canula through the wound, and, at the same time, push the mouth of the tracheotomy tube into its place, until this latter is fairly lodged into the trachea. Then the canula may be withdrawn through the wound in the crico-thyroid membrane. This latter method would be, perhaps, a good operation in cases requiring it from drowning, etc.

Such is the operation we propose, and which we intend in future to perform. In conclusion, we will briefly detail two cases operated upon by this principle, *i. e.*, the fixation of the trachea and the elevating it away from the great vessels before making the incisions into it.

The first case was that of private Henry, Mounted Rifles, occurring at Fort Union, during the winter of 1858.

This man was found drunk by his orderly sergeant and temporarily confined in a privy; one hour afterwards, at 6 P. M., he was discovered to be dying. He was carried to the hospital, where the steward, by dint of pounding, etc., caused the poor fellow to disgorge a bit of meat which he had vomited into his trachea or rather his larynx. I arrived as soon as possible, and found the patient perfectly comatose and pulseless. The apnoea was complete. It was so dark that I could scarcely recognize the man's features, and candles were not at hand. Feeling that no delay was

allowable, I at once plunged a common lancet into the crico-thyroid membrane, and introduced a catheter, carried its point down to the part of the trachea I wished to open, and depressing its handle I thus elevated the point of the instrument, and with it the trachea. I then plunged the lancet into the mouth of the catheter and divided all the tissues upwards by simply withdrawing the catheter and with it the lancet. The man breathed his last before the operation commenced, although every method for his recovery, including Marshall Hall's, was tried for an hour and upwards, but in vain.

I may mention, incidentally, that after making the incision in the crico-thyroid membrane and withdrawing the lancet, I was puzzled for an instant by the protrusion through the wound of a singular looking substance of the nature of a tumour. In the darkness, I guessed that it was a bit of meat, and accordingly pushed it into the gullet with my little finger before introducing the catheter. The operation did not consume more than thirty seconds time, and the autopsy next day showed that the wound in the trachea was exactly in the mesial line, and that no vessel of any size had been cut. The parts involved are now in my possession. The hemorrhage was profuse, though not more so than might have been expected considering the congestion caused by the union of drunkenness, strangulation, and the residence for an hour in the stifling atmosphere of a privy. The autopsy revealed an enormously enlarged thymus gland, weighing 210 grains. The deceased suffered from secondary syphilis and all the glands of the neck were much enlarged.

The second case occurred at Fort Defiance, N. M., in the spring of 1860. A child of a camp follower, aged 5 years, possessing a neck and disposition peculiarly unfitted for tracheotomy, had inhaled a bit of a bean or a grain of corn. She was almost suffocated, and as there were no auscultatory signs of any foreign body in the bronchi or trachea, and as there was a singular whistling noise in the larynx, I diagnosed a foreign body in the ventricles of the latter. Much to the little patient's disgust an incision was made through the skin over the crico-thyroid membrane, this latter punctured and a grooved director carried down the trachea a short distance. By depressing the handle of the grooved director the point was raised, and along with the latter the trachea, which was thus carried away from the great vessels, and fixed. As haste was no object, I carefully by regular incisions divided skin, superficial and cervical fasciæ, then separated the muscles of the trachea, and held them asunder by means of small blunt hooks, to which fine chains were attached loaded with weights, and the latter having been thrown over the edge of the table kept the trachea well exposed. I thus obviated the necessity of an assistant, who was not to be obtained. Now came the difficulty of the operation; the child was angry and frightened, and spit in my face until I was nearly blind. First, the isthmus of the thyroid was secured by two twisted sutures, in the manner of Brainard; hemorrhage thus prevented, the trachea was now well lifted away from the great vessels, and although I was nearly blind as before stated, with a feeling of delightful security I pushed a knife through the thoroughly fixed trachea, and slit upwards two or three of its rings, simply by sliding the knife along the groove of the director. This latter was then withdrawn. I then bent the scoop of the director so that it resembled the Graefe aneurism needle, and passed it into the ventricle of the larynx. In doing so, I felt something give way or slip from under the instrument. It



proved to be a grain of corn or a bean, which the child evacuated per anum thirty-six hours after, so much altered as to be unrecognizable. A small portion of the husk of the same was brought away in the scoop of the director. It was lodged in the ventricle of the larynx, and was large enough to do much harm. The patient still breathed with great difficulty from the tumefaction of the mucous membrane, and as a precautionary measure it was thought best to keep the wound open for twenty-four hours. Small doses of calomel and tartar emetic were given every two hours, the trachea was moistened every few minutes with a few drops of glycerin and fumigations of acetic acid employed. In about thirty-six hours, finding that the patient was able to breathe through the larynx, I closed the wound in the trachea by some fine wire suture, and left the patient, directing quiet and confinement for a few days. In three weeks the wound was healed, excepting a small fistulous orifice in the trachea. By frequent applications of nitrate of silver this closed also. And the patient is now, three months after the operation, quite well.

We deem that enough has been said to show

- 1st. That the method proposed is far safer than the old plan; and,
- 2d. That it may be performed more rapidly and easily.

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ART. VII.—*Case of Primary Pyæmia.* By JAMES BLAKE, M.D.,  
F.R.C.S. San Francisco, California.

THE occurrence of cases of primary pyæmia is so rare, that I think the following instance of a most acute form of the disease is worth publishing. In most systematic works on medicine, the existence of such a form of disease is not noticed. Wunderlich, however, in the *Archiv. für Physiologische Heilkunde*, for 1857, relates five cases that he had met with in his extensive practice. In only one instance, however, was the disease so rapidly fatal as in the following case, and even in that it was preceded by circumstances which were much more calculated to give rise to a vitiated state of the blood. As far as my knowledge of medical literature enables me to judge, the accompanying case is unique in the apparent absence of all those antecedents which have generally been regarded as essential to the development of the disease.

G. L., æt. 14, a strong, healthy boy; has always enjoyed good health, having even escaped up to the present time all the infantile, eruptive fevers and hooping cough, although frequently exposed to them. On July 23d, whilst playing, and on the ground, he received a kick in the thigh from one of his school-fellows. The kick caused him some pain, so that he sat down for about half an hour. He did not complain on returning home, and the next day he went to school as usual, walking a considerable distance; but on coming home in the evening he was lame, and complained

of his leg hurting him. At night he was rather restless and feverish. The next morning (the 25th), the leg was more painful, the thigh being swollen and red. There was a decided chill about 9 A. M., followed by fever and loss of appetite. The pain in the leg, swelling, and redness increased towards evening, and all night he was in a high fever, and frequently delirious.

I saw him for the first time on the morning of the 26th. I found the right thigh considerably swollen and red, the swelling extending from a little below the groin down to the knee, but most marked at about the junction of the upper and middle third. There was some hardness, and a feeling of elastic tension. Handling the part caused considerable pain, and there was great tenderness on pressure over a spot on the outside of the thigh, about three inches below the trochanter, the place where it was stated that he had been kicked. There was however no ecchymosis, nor anything except the increased pain, to indicate that this was the seat of the original injury. The movements of the hip could be performed passively without pain, nor was there any symptom of injury about the joint. The child complained only of violent headache and pain in the thigh. There was great thirst, and complete anorexia. The bowels had been freely opened by a saline purge. The skin was hot and dry; tongue white; pulse 120, full.

The diagnosis was, that there was inflammation going on beneath the fascia lata. I proposed an incision on the outside of the thigh, more with the view of relieving tension and preventing infiltration than in the expectation that pus had already formed. The parents wishing a second opinion, I met Dr. Dupuytren in consultation on the case in the afternoon, and his views coinciding with mine, an incision two and a half inches long was made down to the bone. Nothing escaped but some blood and serum. Tincture of veratrum viride and spirit mindereri was ordered to allay the fever, and morphia in full doses to procure sleep.

*July 27.* The child has passed a restless night, except when stupefied at short intervals by the morphia, of which as much as two grains have been taken. When awake he has been wildly delirious. Skin hot; pulse 110, full; great thirst; tongue coated white. Features express anxiety; skin of a dull, brownish-yellow colour. The thigh is rather more swollen, and pain is complained of in each lower extremity. Both ankles are rather swollen and look red. Small collections of pus are observed on each lower extremity. They seem to be directly beneath the epidermis, and vary in size from a pin's head to a pea; some are umbilicated. There are about twenty on each limb, situated mostly below the knee. In fact, there were none on the injured thigh, and but two or three on the other. None were found on the arms, face, or trunk.

In the evening the pulse was down to 90; some perspiration had taken place, but the patient was delirious nearly the whole time. Some egg and

brandy was ordered, and tinct. ferri sesquichlor. in twenty drop doses every three hours. One-third grain morphia was to be taken every hour until he slept. It was now evident that the symptoms were not owing to inflammation or abscess beneath the fascia lata, and as the patient rapidly became worse, the only conclusion that we could arrive at was, that it was a case of blood poisoning. The case was seen by Dr. Toland and two other physicians, and whilst the symptoms now clearly pointed out the nature of the disease, yet we could see no apparent cause for its proving so rapidly fatal. The patient died on the morning of the 30th, or five days after the appearance of the first symptoms.

Assisted by Dr. Staub, I made a partial examination of the body twelve hours after death, as we were only permitted to open the thorax and abdomen. On opening the thorax, the lungs collapsed but partially, as they were pretty generally affected by a sero-sanguinolent engorgement. On the surface of the lungs, and immediately beneath the pleura, were a number of small abscesses, and on cutting into them, small collections of pus were found throughout the whole of the pulmonary tissue. These abscesses were small, the largest not being larger than a small bean. On opening the pericardium it was found to contain about three ounces of serum, and some shreds of detached fibrin. The surface of the heart, as well as of the free surface of the pericardium, was rough. At the base of the heart, near the origin of the aorta, there was an appearance of ecchymosis in the muscular tissue, and on cutting into it an ill-defined purulent collection was found almost the size of a quarter of a dollar. The right cavities contained some decolorized fibrinous clots, which extended some distance into the pulmonary artery. The blood in the left cavities was dark and fluid, but some of it that was preserved for examination coagulated after a few hours. The lining membrane was healthy. The liver and spleen appeared normal; a careful examination failed to detect any purulent deposits in either of these organs, nor was the spleen at all softened. The kidneys presented on their surface a number of small collections of pus, analogous to those seen on the skin, and situated immediately under the capsule. There were about a dozen of these on the surface of each kidney, some of which were surrounded by an ecchymosed border. The substance of the kidneys was darker than natural, particularly the right, but no purulent collections were found except on the surface. The iliac veins of each side, and the lower part of the cava, were examined. There was no clot in either; but the lining membrane of the right iliac was not so smooth as that of the opposite side. A microscopical examination of the blood, taken from the left side of the heart, showed the corpuscles to be nearly all altered in shape; hardly one could be found with the natural, clear contour; they were mostly irregular, presenting generally a stellate form. The proportion of colourless corpuscles was rather larger than natural, and they were less transparent, presenting the appearance between normal colourless cor-



puscles, and pus globules. The microscope showed the urinary tubes loaded with pus globules and epithelium.

Such is the history of the case. There can be no doubt but that death was caused by pyæmia; but the rapidity of the disease in a previously healthy child, and the slightness of the apparent cause, are points which make it interesting. The child's general health was excellent; it had no illness for years, having escaped the eruptive fevers, and other children's diseases, although frequently exposed to them. And yet, under these circumstances, a slight bruise, so slight as hardly to leave a mark on the skin, sufficed to develop a disease which, in four days, had so far affected the system that pus was deposited on the internal organs and on the skin. A bruise was received on the 23d, at noon; no symptoms of importance showed themselves until the morning of the 25th, when there was a chill; and on the morning of the 27th, or forty-eight hours after the chill, purulent deposits were formed beneath the skin, and most likely on the internal organs. Death took place early on the 30th, or less than five days after the appearance of the first well marked symptoms. A most careful inquiry failed to connect the disease with any extraneous source of poisoning. The only antecedent that might be thought to have been connected with the appearance of the disease was, that two months previous to his illness the child had ridden into the water a horse that was said to have had sores on its body; but this was entirely accidental, as the child was not accustomed to be with horses. The eruption on the skin was analogous to that seen in cases of farcy; but the absence of any affection of the mucous membranes of the nose or throat—the length of time that had elapsed since exposure to the possible source of contagion—and the apparent connection of the disease with a local injury, lead to the conclusion that the case was one of primary pyæmia.

NOTE.—The fact of the child never having had any of the eruptive fevers of childhood might, perhaps, have acted as a predisposing cause for the disease.

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ART. VIII.—*Ligation of the Subclavian of a Negro. Death of the Patient. With some Inquiries as to its Cause.* By RUFUS KING BROWNE, M. D., late Brigade Surgeon U. S. V., Surgeon in chief U. S. General Hospital, New Orleans.

A CASE of ligation of the subclavian in this hospital was recently reported by Dr. J. B. Muse, of this hospital. The patient afterwards died. At the time the report was read to me, I had no opportunity to express any opinion on the exciting cause of the death. No untoward or peculiar incidents up to the occurrence of the febrile rigor were consequent on the operation.

I had often performed it on the cadaver. I have not since been successful in imagining any cause of death but the rigor, though it is supposable that the operation itself without such coincidence may terminate fatally, as that did, and that without symptoms of gravity plainly attributable to it. The patient was very eligibly situated in Hygienic particulars for recovery, and was visited several times a day by myself and others. The patient never complained of aught but a slight soreness of the operated part. He was cautiously dieted and well attended by his wife and friends. The wound was seen on each visit several times a day by myself and dressed by my own hands. The suspicion of empyema is precluded by the absence of any indication of it in the autopsy, or in the course of the case. He occupied a room by himself, well lighted and airy. But one suspicion ever crossed my mind that my injunctions had been disregarded; this was that he might have copulated with his wife, who watched him one night, but this was positively denied; and this suspicion was precluded by the fact that in such cases the result, if any, would have been immediate or consecutive on the act. The death did not occur until late in the forenoon.

All the noticeable incidents antecedent to the death are already related. The first of them was the faintness of the patient; when risen to use the chamber, the attendants noticed a sudden faintness, weakness, not to syncope. This incident was the first of the closing scenes of his life. It was immediately reported to me—only two rooms separating me from the patient's bed—and one of the three persons with him at the time, came to me *at once*. The rigor came on immediately after. This faintness indicated a perturbed or labored action of the heart, which was found to be the fact; when the rigor set in, the hand of the operated side at once appeared *shrivelled*. He complained of nothing but the weakness. Soon after the respiratory movements were diminished in degree, though orderly, stimulants were prescribed, and while they were being taken, a renewed examination was made of the cardiac movement; it was regular in measure, but *labored*. The heart beat was not circumscribed to the apex, but the whole ventricle was urged against the precordial space; the pulse was but 84. To the last he complained of nothing but the heart "keeping a fooling." There was no other sense of distress. Under the influence of the stimulants the symptoms of rigor were dispelled. The sweat on the forehead still continued, though remarkably abated, but the skin was nowhere cold. This condition of the heart continued until death. There was no evident engorgement or excitement of the great vessels of the neck. Was the rigor strictly febrile, or was it a consequence of the operation, and due to that "constitutional irritation," so well described by Tyrrell of London, in 1824, who attributed to it many deaths not otherwise accounted for? Many times in cases with or without serious organic lesion, when we have been at a loss to account for death, this hypothesis seemed reasonable. The location of the hospital is highly malarious; and was the irrita-

tion inaugurated by the action of the miasmatic air during the operation, on the exposed tissue? It set in on the seventh day after the operation. The wound was found peculiarly healthy and free from suppuration, but far from dry. Would this have been so were it the seat of an infectious or epidemic influence; and is a miasmatic atmosphere a source of disaster in the existence of wounds of the body?

Such are the questions it would be a great progress in pathology to answer; or was the increase of blood by *so much as its circuit was diminished in extent* too great for the normal action of the heart? The patient was very full blooded and well nourished. This supposition would attribute the fatality *wholly* to the consequence of the operation, and this would hardly take the *choice* of supposition; for shall we not rather suppose that as in the febrile rigor there is always comparative interior congestion, a relative heaping or arrest of their contents nearest the centre of the circulatory system, that the occurrence of the rigor was the *co-efficient* cause of the laboring condition of the heart. There were no brain symptoms, and although inspiration was *abbreviated*, the respiratory movement was orderly and unintermitted.

To the last, the arterial action was not greatly accelerated, nor the cardiac movement increased, but rather oppressed, as though the blood forced out by each *antecedent* stroke had not been hurried away, and *that* because of the relative increase of its amount in the same calibre to contain it. This is easily apprehended, or what was first shown experimentally by myself, a congestion of the vascular part of the walls and thickness of the heart itself.

It would perhaps bring us nearer the truth to ascertain exactly the difference between the negro and Caucasian constitution. The patient was a negro. Their blood is relatively richer in carbonic acid, and other elements which dispose to apathy. In all diseases which involve principally the arterial system and its contents they are disposed to stupor. The grade of nervous action is relatively low. In them with pneumonia, the congested condition of the pulmonary capillaries is always deeper, and since the relief of congestion is dependent on nervous power and co-efficiency, it seems not improbable that in this case these elements—not so in the case of the white—contribute to such a fatal termination.

These latter suppositions are rather favoured by the fact that the stimulating measures caused an *immediate* improvement in the sinking condition, so great that we no longer despaired of the patient's life. Our alarm was greatly diminished, and death, which at first seemed imminent, did not take place for four hours afterwards. Again, the chilly state of the system supervened, and the patient died without a sign of distress; no symptoms thought to be of poisoning were remarked, and no sign of inflammatory or other malignant action was found in any of the vessels. Indeed there had been no symptoms to occasion a suspicion of such. The tumour was filled



with a dark but not firm clot. Would it have been better surgery to allow the aneurism to take its course, or to have endeavoured the complete suppression of the axillary artery by some mechanical contrivance? If we admit the doctrine of "constitutional irritation," to what was it attributable—to the wound, or to the general condition of the system in a malarious atmosphere? I briefly recapitulate the antecedents of the operation, that each reader may judge for himself whether they are suitable to this doctrine.

Five months before, "William" trying to escape to Needham on the entrance of the Union forces, was assailed by his master with a loaded pistol, from which four shots were fired. Two struck him on the deltoid part of the arm, nearly on a level, when the arm is dependent, with the middle of the axillary space. These felled him to the ground. He was raised and taken home. He "had never been sick," but "for a week after receiving these shots he had a fever." A physician washed the blood away and *poulticed*. After that week, the pain diminished in his shoulder, and he continued to "*feel the misery in his hand and elbow.*" Still further on and up to his visit to me, he complained of a want of power in his arm, and then it presented much diminished sensibility and power of motion, being in a dependent posture. The patient received no further treatment until that period. Then I supposed that the tumour in the axillary space was the seat of the ball. Being pressed with multitudinous avocations, I dismissed him to come again. He did so weeks afterwards. The tumour was now longer, I thought, than when first seen. It was dense, and though resilient, presented no signs of an inclosure of pus, or other morbid product of inflammatory or irritative action. At first, then, I did not think it an aneurism, but still supposed it probable that it was the seat of the ball. The increasing lameness of the arm, and its comparative useless state, counselled some operative interference. I very cautiously cut through the skin upon the tumour. Again I carefully felt, and now detected *obscurely*, signs of pulsation. I desisted at once. I immediately covered the incision through the skin, and told him to call when it was healed. I *suppose* I did not then *listen* stethoscopically for the signs of aneurism. If I did not, I can only account for the omission by supposing some sudden and imperious demand of hospital duty, constantly occurring, drew me away from the spot, or what is still more probable, and decidedly believed to have been the case by my assistants—that he was told to wait until the stethoscope was brought, that the examination might be more private, it having been made in the most public business room of the hospital. It is most probable this was the case, but if so, like all of his race, if so told, *after* the words were spoken all remembrance of them passed away. I saw him next about two weeks after, while he was on a visit to his wife; and then my first act was in accordance with the suspicion of aneurism. I at once listened with the stethoscope, and was decided. My assistants present, Drs. Muse and Clary, did the same and agreed. He was then at once told the

nature and danger of the case, without an operation, and the gravity with it. That he appreciated either clearly, I cannot say. He only asked if it would *hurt* him, and was told that he would not feel the operation. I at once prepared to perform it. The table was made ready, and the patient placed upon it. I had but two assistants, those named above. The chloroform was administered by Dr. Muse. Shortly after coming under its influence the respiratory movement intermitted. Long accustomed to this result in animals, it was withheld. For the time being, the suspension was complete, but there was no confusion. But a few seconds had intervened since he was struggling under control, and the suspension of the respiratory movement was so abrupt, that the administrator with his eyes on the patient's face, his hand on the radial artery, did not notice it as soon as myself. His tongue was at once drawn forward with the forceps in my hand, and held by Dr. Clary. I alternately depressed and upheld at the sides his chest. With my left hand I felt for the heart beat, and discerned it much diminished and of slow rate. The action on the chest was continued, and the suspension of the respiratory movement immediately ended.

The pure chloroform was now withheld, and the patient made to inhale a mixture of that anæsthetic and sulphuric ether. With this, he soon after—some vigorous struggling attesting the complete return of his bodily powers—again became quiescent. The operation was now performed. He was but lightly anæsthetized by my direction, and on the first cut squirmed, struggled, and vigorously mumbled. Being held comparatively still, I continued. When about half through the operation he again struggled, but an increase of the quantity of the anæsthetic again made him quiescent. Except the incision through the skin, and the division of the muscular tissue, all the tissue gone through was divided by the *forceps*. No bloodvessels of the least calibre were cut. The vessel was at least once and a half or twice as deep as I ever saw it in any cadaver, on which I had previously performed the operation.

The third division of the artery was found out of its usual relation; it was however soon found and tied; my assistants having assured *themselves*, at my suggestion, that it alone was ligated. The extreme depth of the wound was owing to the very remarkable thickness of the clavicle, and the more extreme bulge of the ribs; the patient being one of those barrel chested negroes sometimes met with.

There was no ground for the suspicion that the least portion of any other tissue had been included in the ligation, and the autopsy showed all but the artery apart from the ligation. That wounds in a malarious district are more dangerous, or turn to a greater ratio of fatality among the wounded, would be indeed a fact of startling gravity. In seeking an explanation of such points, caution cannot be excessive; otherwise it is building an edifice which does not suit the site. It has been unexpectedly observed that the fatality of wounds in the fever districts of the Virginia peninsula was very great.

Was the inordinate depth of the wound a condition of fatality? This might readily be the case unknown as yet to us, a hitherto unconsidered danger? I need hardly multiply questions I am unable to answer.

There is, however, one consideration which we have long believed to be important, and which was strengthened by this death. If the obliteration of an artery and thereby the cure of aneurism by pressure be the best known mode, why should we not deem it better than ligation to imitate it as near as possible, where the ligation is impracticable. How far the *ligation* itself contributes to constitutional disturbance we do not know. Several years since I conceived the idea that pressure on the artery, when exposed, by a delicate slip of metal, bent upon itself over the artery, and which merely flattened it, was a better proceeding than ligation. Some experiments made on the arteries of animals proved it to be correct. The same is the case in all pressure where it is convenient, and I regret that I did not find the first convenient in this instance.

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ART. IX.—*Dislocation of the Left Shoulder reduced by Manipulation, without the Employment of Anæsthetics or other Remedies.* By CHARLES H. PILE, M. D., Assist. Surg. U. S. Navy.

ON the morning of October 9th, I was called to see a sailor suffering from an injury of the left shoulder, produced by a fall on deck. On examining the injured part, I discovered a luxation of the humerus forward, the head of the bone forming a prominent tumour under the belly of the pectoralis major muscle; the acromion process of the scapula was prominent and well defined. I immediately proceeded to reduction. I seated the patient on a low stool, flexed the forearm on the arm, elevated the arm at an angle of  $45^{\circ}$  with the body, then rotating the head of the humerus by turning the arm backwards as far as possible, and afterwards suddenly reversing the motion on carrying the injured extremity across the chest towards the sound side, when the head of the bone slipped into the glenoid cavity with a slight noise. This process for reducing dislocations of the shoulder was taught me by my old friend and preceptor, Prof. H. H. Smith, of Philadelphia.

The advantage it possesses over the old method is very manifest, since instead of requiring a vast expense of muscular power on the part of the surgeon, it is nearly all transferred to the muscles of the patient. In flexing the forearm on the arm, the flexor muscles are relaxed; by elevating and rotating the head of the humerus, it is dislodged from the neck of the scapula, and gradually forced upon the edge of the glenoid cavity, when the supra-spinatus, deltoid, and infra-spinatus muscles quickly draw it into its proper place.



ART. X.—*Hemorrhage following the Extraction of a Tooth.* By GEORGE S. D. ANDERSON, M. D., of Rapides, Louisiana.

THE following case of hemorrhage consequent on the extraction of a tooth came under our observation some time since, and we report it because it may be considered as possessing some points of interest.

S—— S——, a shingle maker and house roofer by trade—about 50 years of age, of the bilious-sanguine temperament, light hair, very light hazel eyes, large, well formed and muscular, has been and is a man of dissipated habits, but is free from hereditary predisposition to disease—had the right upper cuspid tooth extracted by us at about 12 M. of Wednesday, the 19th of December, 1855. After extracting the tooth, we told him to put some common salt into the cavity whence the tooth was extracted. He did so, and resumed his labour, riving boards. He continued to work till night, lifting frequently heavy bolts of timber. The hemorrhage ceased, or nearly so, till about 6 P. M., when it recommenced and bled freely till about 5 next morning, when we were summoned in haste to see him. We found a good many coagula of blood on the hearth, and on the floor of his room. He had fallen into a doze a short time before our arrival, and was sleeping when we entered the room. A coagulum of blood was hanging out of his mouth, reaching to his pillow. He soon awoke, when the clotted blood was removed from his mouth. The hemorrhage was still going on, with no disposition to stop. The bystanders stood somewhat amazed, being apprehensive of a fatal result.

Such was the case before me. I could not ascertain with any degree of certainty the quantity of blood that had been lost, but enough to cause faintness whenever he rose to the sitting posture. Under these circumstances what was to be done to arrest the hemorrhage? Mr. S—— was not of the hemorrhagic diathesis, and there was no want of coagulability in the blood, as evidenced by the numerous coagula lying on the hearth before me. It was, then, clearly evident that compression over the open cavity for a sufficient length of time for the blood in it to coagulate would arrest effectually the hemorrhage. We therefore put our finger over it till we could get some sole-leather, from the flesh side of which we had enough scraped to form a plug. This we put into the alveolar cavity whence the tooth had been drawn, and continued to make pressure with our finger for near two hours, and thus succeeded in arresting the hemorrhage.

The pressure alone might have sufficed in this case, and no doubt would, but as the leather possesses astringent properties from the tannin used in tanning it, it is very clear that it better answers the indication than almost anything else. Besides, it is an animal substance, and is not likely to create inflammation, as lint or other vegetable substance would do. Cobweb, fur, and other things have been used for the purpose of arresting hemor-

rhages from incised and other wounds by the vulgar, and even by physicians in some instances, under the belief that they have some specific effect in arresting hemorrhage. This is an erroneous opinion, as they are possessed of no astringent properties whatever. By adhering to the edges of the wound, they interrupt the flow of blood by forming a coagulum, which closes the orifice and stops the bleeding. Cobweb had been used in the case now reported, and if pressure had been made a sufficient length of time it would have answered every desirable purpose. But the substance used by us in this instance (and it was originally suggested by another), answers better, as it combines in its action astringent properties. We certainly believe that this would be the best substance that could be used in those cases of hemorrhage following the extraction of teeth in persons in whom the hemorrhagic diathesis exists, in which there is manifest want of coagulability in the blood. Dipped in a saturated solution of tannin, nothing, it appears to us, would answer a better purpose. Or, the cavity might first be injected with the solution of tannin.<sup>1</sup>

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ART. XI.—*Premature Delivery, with very rare Presentation of the Fœtus.* By W. T. OWEN, M. D., of Louisville, Ky.

I WAS called to see Mrs. J., of Louisville, aged 15 years, primipara, in labour after a seven and a half months' pregnancy, on the 24th of May, at 2 o'clock A. M., and found her with strong, frequently recurring labour-pains, induced by a large dose of castor oil, which she stated that she had taken on the previous evening. Os uteri slightly open. Prescribed sulph. morphiæ gr. ss every half hour, or *pro re nata*. Two doses secured perfect tranquillity through the remainder of the night, and for the next twenty-four hours, when I was called again, to find her decidedly in labour, and the os uteri dilated to the size of a half sovereign or over; the lips of the os rigid, membranes tense, uniform to the sense of touch. Unable to distinguish the presentation. Maintained the integrity of the membranes until the anterior lip of the neck of the uterus would easily pass up behind the os pubis and remain, and supposed the nates to be the presenting part; then ruptured the membranes, and a most inordinate flow of liquor amnii passed off instantly. Upon immediate examination, I found the right side of the fœtus presenting; the anterior surface of the child corresponding to the anterior aspect of the mother; the right hip of the child in the left iliac region, the right shoulder in the right iliac

<sup>1</sup> [We must take advantage of this opportunity to call attention to the efficacy of the persulphate of iron (Monse's salt) as an hæmostatic. It is undoubtedly the most efficient one we possess, and when procurable, it should not be overlooked.—Ed.]

space, equidistant from the os uteri proper. The next pain was very severe, forcing the child down deep into the pelvis, with no prospect of delivery in said position. I demanded a consultation with Prof. Miller. However, I placed her immediately under the influence of chloroform carried to anæsthesia, and the uterus, which hitherto had strongly contracted, and was now moulded to the shape of its contents, relaxed, and enabled me to push up the superior extremity sufficiently to bring down by its next pain the nates; and with the second pain the breech fairly engaged within the os, with a foot and leg flexed on the thigh. I delivered her very shortly after of a living male child. The head was sufficiently long in its detention to cut off the placental circulation, which I counterbalanced in my efforts at extraction—my finger in the child's mouth enabling it to take four inspirations; intra-uterine respiration.

Having given a concise account of the prominent features of the case, I desire to make a few observations by way of synopsis.

1st. The extreme youth of my patient—scarce fifteen years; the vaginal canal, os externum smaller than any accouchée I have ever known. 2d. The propriety of permitting the membranes to remain entire, if possible, until full dilatation of the os takes place. This I deem of the first importance in vertex presentations, and *à fortiori* in nates and other preternatural presentations. 3d. The value of chloroform—in this case most signal. Why? It produced relaxation of the uterus sufficient to enable me to convert a most unusual and dangerous position into a comparatively safe and not unusual one. At the time of the rupture of the membranes, when the fact was clearly before me that I had a side presentation, and I demanded a consultation, my mind was clearly made up that version was unattainable on account of the extreme smallness of the vaginal canal and os externum—that my only chance was embryotomy, and its feasibility for the same cause was a question. I succeeded without other aid. 4th. The inspiration of four full breaths, taken by the child while its face was impacted in the hollow of the sacrum; intra-uterine respiration. 5th. A living child, well formed, uninjured.

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ART. XII.—*Case of Placenta Prævia.* By WM. T. TAYLOR, M. D.

ABOUT the beginning of September, 1862, I was engaged to attend Mrs. Q., residing in the 20th ward, during her labour, which was to occur in October following.

For a few months previous, she had been troubled with frequent, but slight uterine hemorrhages, which being attended with no pain, caused her little uneasiness, this being her second gestation.

On the 16th of September, the flow was very profuse, and being somewhat alarmed she sent for me; it however had ceased before my arrival.



Suspecting it to be a case of placenta prævia, yet requiring no interference at that time, I requested her to remain quiet for a few days, and avoid any exertion.

There was no recurrence of the hemorrhage until September 26th, when it came on very profusely, accompanied with some pain.

On examination per vaginam, the os uteri was dilated to the diameter of an inch, and within the neck covering the os completely was the placenta, bleeding freely with every pain; indeed the hemorrhage since morning had been quite alarming. Having tamponed the vagina I waited patiently for an half hour, when the pains being quite severe and very frequent the tampon was removed. The dilatation had increased considerably; again the tampon was introduced and an hour was allowed to pass; when the pains being very severe, and occurring more frequently, accompanied also with some discharge of blood, in consequence of the plug not being accurately applied, it was again removed. The os uteri was found to be well dilated, and completely covered by the placenta.

Having gradually passed my hand between it and the posterior lip of the uterus, I detached a portion of it, and discovered the membranes above; on rupturing them the hand and foot of a small child presented. The mother was quite exhausted by the hemorrhage, and a draught of brandy and water was given to her, when I proceeded to deliver her by bringing down the feet and body; the arms and head were extracted with some little delay.

The child appeared dead; but as there was some pulsation in the cord, and a portion of the placenta still adhered to the uterus, by rolling it gently from side to side (as Marshall Hall suggests to imitate respiration) for a few minutes, it began to breathe, and very soon manifested its vitality by loud cries.

When it had acquired sufficient strength, and a good degree of warmth, I tied the cord and removed the placenta. The womb contracted firmly; the after-pains were very slight. The mother made a rapid recovery, and her babe is now quite vigorous and large. Its life is probably owing to the circumstance that the placenta remained partially attached to the uterus until after its delivery, thus keeping up the connection with its parent until respiration was established.

December 2d, 1862.

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ART. XIII. *Case of Injury of the Neck.* By REDFERN DAVIES, M. D., of Birmingham, England, now acting Assistant Surgeon U. S. A. (Brought before the Brodie Med. Chirur. So., Frederick City, Md.)

LEVERETT EVANS, aged 22 years, of small stature, and feeble build, was wounded at the battle of Antietam, September 17th, by a bullet entering

(his mouth being open) about the middle of the left anterior pillar of the fauces and issuing at the back of the neck, two inches from the spinous process of the second cervical vertebra on the left side.

A probe passed freely through the two apertures, grating against bone in its course.

He stated that he had lost much blood, producing faintness for several hours after the receipt of the injury. Since, however, having been a patient in this Hospital he has done well, and as usual was walking about the ward keeping his head as immovable as he could up to the morning of the 31st of October.

When while lying down on his bed and without any known cause hemorrhage of a "bright red colour" occurred to the amount of "about one wineglass full;" this bleeding issued from both apertures, and continued but for a few minutes, so that when I was in attendance upon him there was only some clotted blood to be seen in his mouth and on the back of his neck.

Another hemorrhage occurred in the course of two days, when "about a teaspoonful" of blood was lost.

Both apertures as well as discharge from the wound continued very good, and his general condition, though feeble, was fair.

On November 13th, shortly after eating his breakfast, when he appeared as usual, his mouth was observed to be drawn towards the right side, facial expression on the left side was gone, and on attempting to whistle his breath escaped at the left corner of his mouth. In an hour or so he began to mutter incoherently and deliriously, and died next day at 6 A. M.

*Post-mortem* six hours after death, Nov. 14.

Examination of parts involved in this injury showed: a sloughing passage in the bullet track, into which was forced, for a distance of an inch, the last molar tooth; the adjacent soft parts were healthy. Upon injecting the common carotid and vertebral arteries on both sides, the injection passed readily and well in all save in the left common carotid artery where its progress was arrested firmly after passing for a distance of about two inches; here its termination was covered in by an organized *cul-de-sac*, its distal termination as also its branches could not be found.

Ligamentous union and cartilage between the bodies of the first and second vertebræ were gone, their opposing surfaces being roughened.

From the foregoing facts, I am induced to believe that the internal carotid artery was laid open by the bullet which inflicted the injury; from the consequent loss of blood which ensued, faintness was induced. That while in this condition, a sufficiently strong coagulum was produced to prevent any further escape of blood; and that by the process attendant upon the prolonged suppuration (45 days) the remainder of the artery was disintegrated and passed away in the discharges.

The succeeding hemorrhages were caused by minute openings into branches of the external carotid artery, which were spontaneously arrested as they spontaneously arose.

## TRANSACTIONS OF SOCIETIES.

ART. XIV.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1861. Sept. 4.\* *Intra-uterine Hydrocephalus; Breech Presentation; Craniotomy; Recovery of Mother.*—Dr. CORSE related the following case.

Hydrocephalus, occurring during intra-uterine life, is generally of much less interest than when it occurs after birth. It is almost, if indeed not always, dependent upon some malformation of the cranial contents, which would properly place it within the sphere of teratology. Such occurrences are exceedingly rare. Their chief interest is to the obstetrician, as they very generally dangerously complicate labour, and render the operation of craniotomy necessary. This is the case when in labour some part of the head presents, but the difficulty and danger are increased if the breech comes down, as in the present instance.

Mrs. S. J., after having given birth to two fine perfectly formed children, who are now living and healthy, was taken in labour with her third child on Thursday morning, about 5 o'clock. The attending physician was sent for, and arrived about 9 A. M. The symptoms not being urgent, he left her and returned several times through the day. About 5 P. M. the body of the infant was delivered, but the head was retained in spite of his efforts to deliver it. The real nature of the case was as yet unknown, and the cause of the delay was supposed to be absence of uterine contractions. About 8 o'clock P. M. a neighbouring physician was called, who attempted the use of forceps. After fruitless efforts a third was sent for, who, upon examination, proposed that I should be joined to the consultation.

Much time had elapsed in sending messages to and fro, and it was 4 o'clock next morning before I got the message. I was soon by the patient, and found the child was in the fifth position of the breech. Extension had taken place, and the chin was resting on the brim of the pelvis, at the right acetabulum. I succeeded in bringing it down and rotating the head so as to bring the occiput to the acetabulum position. The long forceps were then applied, and during this process it was discovered that the head was of enormous size. Efforts were made to diminish it by compression; but, this being impossible, craniotomy was agreed upon. The head being above the superior strait, the shoulders of the child completely occupied the maternal passage, and presented an obstacle to operating; it was then determined to remove the body by amputation at the neck. The head being firmly secured in the blades of the forceps, and held by an assistant, the neck was severed. Sufficient space was now allowed. The operation consisted in making an opening through the soft parts under the chin, and through

\* This case was unavoidably omitted in the last number of Transactions of the College.



the basilar process of the occipital bone into the cavity of the cranium; by this means a considerable part of the contents of the cranium were removed. Compression at this time by means of the forceps caused the cranium to collapse, and moderate traction delivered the head. The after-birth was removed by manual aid.

The patient had become exceedingly depressed, partly by the unfavourable prognostications of her numerous female friends, and partly by the long continuance of the labour. She soon, however, reacted, and got well almost without an unpleasant symptom.

1862. May 7. Dr. HUNT reported the following

*Remarkable Case of the Co-existence of Tetanus and Paralysis.*—R. C., a boy aged 16, was admitted into the Episcopal Hospital on the 12th of April, 1862. He had been injured in a rope factory by a machine which I personally inspected afterwards. It is a large wheel, some twelve feet in diameter, and eighteen inches broad at the circumference. The outer surface is studded very thickly with polished iron spikes, three and a half inches long, very sharp at the points, and about one-fourth of an inch thick at the base. In fact it is an immense circular comb, revolved by steam, and used for the purpose of disentangling and layering hemp.

While revolving, the machine requires a man and an adept to attend it; but in this case the proper personage was temporarily absent, and the boy, full of ambition, undertook the duty. He was caught, and after being torn by the points of the spikes, was fairly impaled by three of them entering his cranium. Luckily, some one near threw off the belt, and the wheel stopped, but so firmly was the boy fixed, that it took two men, one to support the body and the other to insert his fingers between the spikes, to draw him off. The person who acted in the latter capacity told me that the boy was perfectly conscious; did not think he was much hurt, and wished to walk home or to the hospital. His condition on admission was as follows: There were some eight or ten large lacerated wounds of the back of the *right* hand and arm, the integument being thrown off in flaps, exposing the tendons, muscles, and superficial vessels and nerves. These wounds reached as high as the elbow, and the distances between them corresponded with the rows of spikes. There was no fracture of the bones of the arm or laceration of the muscles. The next point of injury was the left malar bone, which was fractured by one of the spikes, and then the frontal and parietal bones appear to have been pierced. There were three punctured fractures of the *left* side of the cranium, two through the frontal bone and one through the parietal. One of the former was at the frontal protuberance, the other was an inch and a quarter from the first, and just within the temporal ridge. The puncture of the parietal bone was on a line half way between the other two, and a little more than an inch posterior to the coronal suture. We thus have a tripod of spikes indicated, upon which the boy was impaled.

There were no brain symptoms whatever at the time of admission. The reflected flaps of integument on the arm were returned and secured by sutures, and water dressings were applied to the head and face. This was on a Saturday. The boy did perfectly well until Monday, when there were intervals of delirium; but most of the time he was rational, although quiet and indisposed to talk. He continued thus until Wednesday, when hemiplegia of the *right* side came on. On Thursday the patient was reported to me as very much worse. I found him unable to speak; when he made

the attempt, he did nothing but mutter. He was, however, conscious, when aroused, his eye having an intelligent expression, not according with his inability to speak. On trying to open the mouth to protrude the tongue, I found that he could not use his jaws properly, and was not able to separate them more than half an inch. The inability was greater upon the *left* side than upon the right, the paralysis of which continued unchanged.

So preoccupied was my mind with the idea of compression that tetanus did not immediately occur to me. A consultation was ordered at 4 o'clock Thursday afternoon. On my way home, in thinking of the anomalies of the case, the question arose, "Has this boy tetanus and paralysis together, and is one condition influencing the other?" Drs. Kenderdine and R. P. Thomas met in consultation at the time proposed, when my suspicions were fully confirmed. Well marked trismus, the very characteristic risus sardonicus, and hard abdominal muscles, showed unmistakably the invasion of tetanus. At the same time the paralysis of the right side continued, and although perfect as to the arm, the patient once in a while moved the right leg, but apparently had no voluntary power over it. The rectum and bladder were also paralyzed, and from this time until the termination of the case, the feces and urine were discharged involuntarily. It was concluded not to trephine. The sutures were removed from the arm wounds, and warm water dressings applied. The patient was also given chloroform gtt. xx, fluid ext. of conium gtt. x, every two hours. Under this treatment he became much more quiet. On Friday the tetanus was most thoroughly confirmed, by a remarkable combination of empros and pleurosthotonos, that is, while there was a forward bending, the body at the same time was arched towards the left, as though the paralyzed side had no power of resistance. Throughout Saturday the symptoms continued unchanged, but on Sunday the boy became entirely unconscious, and died on Monday morning, on the 10th day from the injury.

*Post-mortem.*—The three punctured fractures of the cranium—at the points before indicated—were as clean on the external surface of the bone as though made by a sharp cutting punch. No fissures radiated from them. Small rough fragments of the internal table projected inwards from the margins of the holes, at which they maintained their connection with the sound bone. One of these was at least a half inch in length, and was connected with the fracture of the frontal protuberance. The membranes and brain were lacerated at points corresponding with the fractures. The right anterior lobe was the seat of a large abscess, and this lobe was more lacerated than the middle one. There was no particular congestion or inflammation of the base and medulla. The spinal cord was not examined. The wounds of the arm appeared to be in good condition. An abscess had formed about the left knee joint. The other parts of the body were perfectly normal.

*Remarks.*—Had the tetanus here a peripheral or central origin? In "Curling on Tetanus," I find a table of 128 cases, of which 110 had the original wound on some part of the extremities, and 69 of these either in the hands or feet; 5 only had wounds of the head. The lacerated wounds of the arm in my case were of the very kinds that are supposed to be more fruitful of tetanus than others.

Did the two conditions of tetanus and paralysis have any influence on each other? Was there a cross action here of any kind? I find two cases which may be considered as having some bearing on these points. One in Curling: "A boy received two shots in the spine; immediate paralysis

of the parts below followed. In seven days tetanus came on in the form of opisthotonos. Laudanum was given, in drachm doses, every half hour during the night; and the next day, caustic potash was applied along the whole length of the spine. There was a mitigation of the paroxysms; the patient slept and awoke free from the tetanic symptoms, but the paralysis of the lower extremities and of the bladder remained. Sensation remained perfect."

In the case just reported both sensation and motion were affected.

In "Longmore on Gunshot Wounds," a case is spoken of thus: "M. Baudens extracted, with an elevator supplied with a canula, a ball which had lodged in the eleventh dorsal vertebra, and was causing compression and complete paraplegia. The paralysis disappeared immediately after the extraction of the bullet, but tetanus came on four days afterwards, and proved speedily fatal." In both these cases there was direct injury to the spine, and there must have been much more laceration of tissue than was made through the integuments of the scalp in my case. In fact the scalp can scarcely be said to have been lacerated, but rather perforated by the polished spikes.

With the case before us, we have then three cases in which paralysis and tetanus coexisted. Doubtless there are others, but I have not been able to find them.

Why, when the intelligence of this patient was good, was he unable to speak, but could only give utterance to moaning and guttural sounds? His tongue was not paralyzed. There was nothing the matter with the base of the brain. The hearing and sight appeared to be good; there was no strabismus. Patients with trismus—at least all I have seen—can speak, although low, yet perfectly distinct. Is the explanation to be found in the cerebral wounds interfering with the will and intellect? It was not owing to a stupefied condition that the patient did not speak, for it was two days before coma came on that he lost the power of articulating, and made his wants known by motions with his left hand and by his eyes.

Surgically, the case is of great interest. Should we have trephined this boy over the three fractures? Does not the post-mortem show that we should, in all probability, have added one more case to the long list which has almost abolished the trephine from the surgical armamentarium? The calvaria has been preserved, and is a rare specimen of punctured fracture, with depression of the internal table.<sup>1</sup>

Nov. 5. *Colloid Cancer of the Omentum, Mesentery, &c.; Scirrhus of the Stomach and Uterus; Colloid of the Ovaries.*—Dr. LEVICK exhibited a specimen of cancer, and made the following remarks respecting it: Mrs. —, a lady aged 59, had carefully nursed her husband through a long and fatal illness. During this time, which extended over a period of four years, her health had been good for the most part, excepting some little discomfort after eating, which was attributed to dyspepsia. There was also at the same time a tendency to constipation of the bowels. To relieve these symptoms she took small doses of blue mass, but without any appreciable benefit. These symptoms gradually increased, but she was able to attend to her domestic duties, and to go out daily until the early part of August, 1862, when Dr. Levick was first called to see her. He found her in bed, suffering from pain in the abdomen, obstinate constipation, nausea and vomiting, the stomach rejecting almost everything taken into

<sup>1</sup> The specimen was exhibited.



it. Careful inspection revealed the existence of a hard tumour in the epigastrium, extending toward the right hypochondrium. The abdomen was prominent and very tympanitic. The patient was somewhat relieved by the use of a turpentine enema, and the subsequent use of anodynes. The relief was but temporary, and the constipation and vomiting increased to a most distressing degree, large quantities of a dark coffee-grounds substance being thrown up toward the last of her illness. For more than a fortnight before her death she positively refused to take nourishment of any kind, and none passed her lips. In view of the epigastric tumour, and the symptoms before named, cancer of the stomach and intestines was at once diagnosed. She died October 19, 1862.

The *autopsy* was made three days subsequently. *Exterior.* Emaciation extreme. *Abdomen.* On opening the abdomen a large quantity of serous fluid of a dark yellow colour escaped. As soon as this had all been removed, the abdominal viscera were found to be covered with a gelatinous substance, of the colour and consistence of calves-foot jelly, or in some places a few shades darker, like gum copal. The omentum, as may be seen, is entirely converted into, or replaced by this jelly-like material; it is in many places more than half an inch thick, and is heavy; the locular or honey-comb structure containing the gelatinous ingredient is beautifully apparent. The mesentery, the inner wall of the abdomen, the under surface of the diaphragm, and the peritoneal coat of the bowels, were all covered with the same deposit. The same was the case with the peritoneal covering of the liver, the spleen, and the kidneys; but what is interesting to note, in none of these viscera had the colloid cancer invaded the parenchymatous structure. The liver was in the contracted stage of cirrhosis, but entirely free from cancerous deposit. The spleen is of the usual size, and, excepting its peritoneal covering, unaffected. So too with the kidneys, which, though buried as it were in the soft gelatinous matter, were entirely healthy in their structure. The stomach, as may be seen, is greatly thickened, is hard, and the pylorus the seat of scirrhus deposit. The uterus and its appendages present some points of interest. The ovaries are the seat of colloid cancer, while in the fundus and body of the uterus are two or three tumours, hard, and evidently of the scirrhus form of cancer. The intestines were contracted to the size, in some places, of a goose-quill. The specimen was removed from the body a fortnight since, and by maceration in alcohol has lost its yellow colour.

The thoracic viscera were entirely healthy. Dr. L. remarked that the specimen before the college was especially interesting to him from the fact that the two forms of cancer, scirrhus and colloid, were found associated as they were in this instance, thus establishing the close relationship which exists between them, an identity which had been questioned by some writers on colloid cancer. Especially was this shown in the appearances presented by the uterus and ovaries: the former, as had been already noticed, being the seat of scirrhus tumours; while the latter was exclusively that of colloid cancer.

*Cases of Stone in the Bladder.* By Dr. GILBERT.—The following cases of calculus vesicæ, in which removal was effected by operation, are respectfully submitted to the college. They embrace all the cases operated upon by the writer, and are interesting mainly in view of the advanced age of the patients:—

CASE 1. Amy, a coloured woman, aged sixty-five years. Operation was

performed by section of the urethra, in 1851, at Gettysburg, Pa., assisted by H. S. Huber, M. D. The stone was large, and had to be broken into fragments before its extraction. These together weighed two ounces, and proved to be of the triple phosphate variety. The patient recovered, and lived until 1854, entirely free from symptoms of calculus.

CASE 2. Mrs. S. G., of Brown Street, Philadelphia, aged seventy-one years. The operation was performed in the same manner, on March 1, 1854, assisted by Drs. Bird, W. K. Gilbert, and Messrs. (now doctors) North and Barker. A light coloured lithic acid calculus, weighing six drachms, was extracted. The patient recovered.

CASE 3. Mr. —, aged fifty-one years, of Martinsburg, Bedford County, Pa. The usual lateral operation was performed, in which I was assisted by Drs. Getty and Bloom, of the same place, in June, 1853. Fragments of phosphatic calculi, weighing two and a half drachms, were removed. This broken condition of the stone was the result of a previous attempt, by another surgeon, to remove it by the operation of crushing. The patient recovered.

CASE 4. Mr. —, aged fifty-two years, presented himself at the clinic of the Pennsylvania College, in November, 1853, with symptoms of stone. Being unwilling to submit to the operation by incision, the stone was crushed at several sittings, and large quantities of phosphatic calculus were removed. The bladder became so irritable, however, that the patient refused all further efforts, and left the college before the organ was entirely relieved of its irritating contents. I heard several years subsequently that his sufferings were greatly diminished, so that he did not desire any further operative procedures.

CASE 5. I. McC., Esq., aged seventy-eight years, of Christian Street, in this city, requested me to visit him, in August, 1861. I found him suffering severely from symptoms of stone. A sound was introduced, which immediately enabled me to declare the existence of calculus. The lateral operation was performed in the ordinary manner, on the 28th of the same month, in which I was assisted by Drs. J. H. B. McClellan, R. Levis, A. H. Fish, and W. K. Gilbert. Two calculi, weighing 90 and 100 grains respectively, were removed. These were principally phosphatic, formed around nuclei of dark uric acid calculi, which were exposed in each by friction of the surfaces in contact. This patient was unusually corpulent, being of middling stature, yet weighing two hundred and forty pounds: The perineum consequently was unusually deep. Discharged cured October 11th, and is now living.

CASE 6. Was called to L. F. S., Esq., of Keyport, Monmouth County, New Jersey. This patient, aged eighty-one years and two and a half months, had had symptoms of irritation of the bladder for a number of years, which were borne with but slight inconvenience. On the 9th of August last he rode in a wagon without springs to his farm, six miles from his place of residence. The violent jolting over a rough road gave rise, suddenly, to the most excruciating pains in the region of the bladder. His physician, Dr. B. H. Porter, was called, and, suspecting stone, sounded him, and found his diagnosis correct. I was requested to visit the patient and perform the operation, which was done on the 13th day of August, assisted by Drs. Porter, Dayton, Shackelton, and Croft. The lateral incision having been made, the stone was grasped; but owing to its large size, the right lobe of the prostate gland had to be incised also before it could be extracted. The stone is of the fawn-coloured lithic acid variety, oval in

form, surface studded with large tubercular elevations, and weighs seventeen drachms and two scruples. One side of this stone was evidently attached to the bladder, and became detached during the ride on the 9th in the rough wagon.

The patient bore the operation well; the loss of blood did not exceed four ounces; and he expressed himself quite comfortable, until the urine began to flow through the wound.

Dr. B. H. Porter took charge of the patient, and directed the after treatment. His almost daily reports for the first twenty days were so favourable that there was every reason to believe that recovery was certain. At this stage of the case, however, Dr. Porter became indisposed, and the patient was without any medical attendant, until Dr. Dayton, of Middletown Point, was sent for. A very decided change, of an unfavourable character, had occurred, and the patient gradually became more feeble, and expired on the thirtieth day after the operation. A son of the deceased, who is a clergyman in the Dutch Reformed Church, gave me the following statement incidentally in a letter, written four weeks after his father's decease:—

"He appeared to be doing well until the latter part of the third week after the operation. His appetite was good, and he was at times cheerful. His bowels continued obstinately constive, and Dr. Porter commenced administering small doses of senna every hour, without effect. When Dr. Dayton was called in, he prescribed a wineglass of salts and senna every two or three hours, until it operated. This commenced next day, and became excessive, so that we had difficulty in arresting it, and did not finally until about noon next day. From this time he lost all appetite and began to sink, and so continued gradually until the closing scene, four days afterwards."

From the reported condition of this patient for the first three weeks after the operation it is fair to say that it was successful, so far as the operation is concerned. In all the male cases here reported, chloroform and ether, mixed in proportions adapted to the strength of the patients, were used to full anæsthesia. In none of the cases was there any arterial bleeding, except a trifling amount from the transverse perineal artery, which, with the venous, in no case exceeded four ounces.

It may be observed that the two latter cases rank very high amongst the extreme in age of all reported cases of lithotomy. Chief Justice Marshall, operated for by Dr. Physick, has been considered the most aged person successfully operated on in this country. By reference to the memoir of Dr. Physick, by Dr. Randolph, it appears that Judge Marshall was seventy-six years old when the operation was performed, whereas the ages of the subjects of the last two cases here reported were seventy-eight years and eighty-one years and two and a half months respectively.

*Dec. 3. Hypodermic Injections of Sulphate of Morphia used daily for five months, twice daily for three months, and three times daily for six weeks, with great relief to the patient, and with no unpleasant sequelæ.*—Dr. LEVICK remarked that the Fellows of the College were doubtless familiar with the very interesting paper of Mr. George Hunter, of St. George's Hospital, London, published in the *Medical Times and Gazette* of September 10, 1859,<sup>1</sup> in which he had called the attention of the profession to

<sup>1</sup> See number of this Journal for Jan. 1860, pp. 238–242.



a somewhat novel mode of treatment—that of injecting medicated solutions into the subcutaneous tissue, the *hypodermic* or *subcutaneous injection*, as it is called. Allusion had previously been made to this subject by Dr. Alexander Wood, but Mr. Hunter had gone elaborately into the subject, and given us a paper detailing the results of various cases, in which the subcutaneous injection of the solution of acetate of morphia was resorted to with great relief to the patients. He does not limit its application to the alleviation of local pain, but reports cases of *delirium tremens*, *mania*, *puerperal mania*, *wakefulness*, *chorea*, *tetanus*, and *sciatica*, all of which were more or less benefited by its use. Since his paper was published others of a similar character have been issued, confirmatory of his statement; and very recently it has even been proposed to resort to the subcutaneous injection of solution of quinia in the treatment of dangerous forms of miasmatic fever. Influenced by the statements before referred to, Dr. L., two years ago, had recourse to the hypodermic injection of solution of morphia (Magendie's solution) in several obstinate cases of neuralgia, while on duty in the Pennsylvania Hospital, the result of which was a temporary, and, in some instances, a permanent relief to the patients. The only inconvenience experienced in any of these cases was the occasional occurrence of severe nausea, which, with the formation of abscesses in the cellular tissue, is alluded to by Hunter as sometimes following the injection. The first of these inconveniences, as he justly remarks, cannot be urged as a reason for its relinquishment, as the same result will often follow the administration of opium by the mouth. In these instances, as in that which follows, the instrument used was made in this city. It is of gutta percha, its maximum capacity twenty-eight minims. It has a fine, silver tube about two inches long, terminating in a pen-like point, so fashioned as to readily penetrate the skin. To use it, the skin is pinched up, the point of the tube is cautiously introduced, just far enough to prevent any loss of the fluid, the liquid thrown into the tissue, and the instrument carefully withdrawn. The part immediately becomes white and puckered, but the operation, if properly performed, is an almost painless one.

Dr. Levick now begged leave to call the attention of the College to a case lately under his medical care, in which, after the usual modes of treatment had signally failed, the hypodermic use of the solution of morphia had been resorted to for the relief of intense pain, apparently of a neuralgic character, to the great temporary relief of the patient, and in which this mode of medication had been resorted to daily for five months.

The leading incidents of the case were as follows: — — a highly intelligent gentleman, well known to many Fellows of the College, had three years before suffered from an attack of myelitis, with paralysis of the lower extremities, referred to injuries received by a fall. From this illness he had recovered to such an extent as to resume his usual engagements, walking to and from his place of business without difficulty.

In the early part of December, 1861, he began to experience sharp, shooting pains near the hip, following the course of the sciatic nerve, and extending to the calf of the leg. These pains, which at first were slight, gradually increased in severity, and after a few days Dr. L. was for the first time called on to visit him. The phenomena presented were those of intense neuralgia, with the usual absence of fever or other constitutional disturbance. The previous history of the patient was such as to induce the suspicion that there might be organic disease at the root of the nerve, but at this time and later careful investigation failed to detect this, the possible

existence of which was, however, never lost sight of in the subsequent treatment of the case. The pill of carbonate of iron, with small doses of extract of belladonna, and extract of nux vomica, were prescribed and taken for a fortnight or more without any benefit. As the attacks were somewhat paroxysmal, sulphate of quinia, in full, anti-periodic doses, was next resorted to, but with no appreciable advantage. In fact, from this time until the early part of January, 1862, there was a steady increase of the patient's sufferings. Dr. L. remarked that in the whole course of his practice he had never witnessed such long-continued suffering. The pain had lost much of its paroxysmal character; its intensity was such as to prevent sleep, so that the patient spent most of his nights in his chair. This loss of sleep and protracted pain had seriously affected his general health; he had lost flesh, and his nervous system had become so enfeebled that he was unable to attend to business; even the effort to write his name, or the slightest mental exertion, was attended with an increase of suffering. Up to this time he had used successively various narcotic and other remedies. The extract of belladonna, by pill and by suppository, the external and internal use of aconite, extract of hyoscyamus, morphia in large and repeated doses by the mouth, laudanum enemata (70 drops), and the sulphate of morphia in grain doses endermically, had each been tried, but unavailingly, as the discouraged patient himself said, "with little more effect than so much water." After this Dr. L. determined to try the subcutaneous injection, and with this view introduced fifteen minims of the solution of sulphate of morphia (Magendie's solution gr. xvj to fʒj) into the tissue of the affected thigh. The relief afforded was prompt and decided, and the patient, for the first time for several weeks, passed a comfortable night. The pain, however, recurred next morning, and continued during the day; the injection was repeated next night, and with the same good effect. In this way it was repeated night after night, the dose gradually increased until it reached the capacity of the syringe, twenty-eight minims. Dr. L. remarked that the temporary relief thus afforded was almost magical. Frequently on his evening visit he would find his patient in an agony of suffering, and five minutes after giving the injection, would leave him composed quietly for the night.

During this time measures for the permanent relief of the patient were not neglected. In the early part of February, the injection was given twice daily, the second dose about twenty minims at 1 o'clock P. M., and, not to weary the College by unnecessary details, after this all other modes of medication were abandoned and the hypodermic injection solely relied on. In the latter part of February, a third injection daily was given at about five o'clock in the morning, the effect of the evening's dose beginning to pass off by that time. Twenty minims were given at this time. To recapitulate, from the early part of January to the middle of June, the injection was used every night; from the early part of February to the same time in May, twice daily; and from the latter part of February to the middle of April, three times daily. During this time no unpleasant head symptoms occurred. On the contrary, a marked improvement of the nervous system was evident, and the patient gradually engaged in pursuits requiring increasing mental efforts. As this improvement took place, the early morning and the mid-day injections were gradually omitted, while that at night was continued as before. An attempt was several times made to inject in other parts of the body than the affected thigh, but this was not satisfactory to the patient, and with, perhaps, three or four exceptions, the injections were

all made in the right thigh. That this mode of medicating was not a very painful one, may be inferred from the fact that it was at the earnest solicitation of the patient himself that other modes were abandoned, and that the third daily injection was given him.

As the mild weather approached, the invalid went out daily to drive, spent some days in the country, and in June went to the seaside where, as his health improved, the remedy was entirely withdrawn. To do this was no easy matter. The relief afforded had been so great that the patient dreaded its abandonment, and this last was only effected by the cautious management of his devoted nurse, to whom its administration had for some months been intrusted. It was, however, successfully accomplished by the substitution of water, drop by drop, for the morphia solution. After a brief residence at the seaside, the patient returned to the city, gradually resumed his business engagements, and remained in good health during the summer and autumnal months. During the recent cold weather there had been some return of pain, but not such as to confine him to the house.

Dr. L. remarked, that it would be observed that in this case no claim was made for a radical cure, by the hypodermic injection, of the disorder under which this patient laboured. But what was of interest in the case, and what was claimed for this mode of treatment, was, *First*. That after other measures had signally failed, the subcutaneous injection afforded prompt, and, for a time, complete relief from pain. *Secondly*. That by the regular repetition of the injection the patient was made comfortable, refreshing sleep obtained, and in this way life was protracted until the weather had become such as to permit him to use those hygienic measures which resulted in the restoration of his health. *Thirdly*. That although the injection was used so frequently, and for such a long time, no unpleasant sequelæ resulted. There was no disturbance of the head, and no nausea; no abscesses of the cellular tissue formed; and although the points of insertion were so numerous that it was sometimes difficult to find a spot where the instrument had not already been introduced, yet all these healed readily, and there was now nothing left to indicate where the injections had been used.

Under these circumstances Dr. L. did not hesitate to recommend the hypodermic injection as a valuable addition to our modes of medication.



## REVIEWS.

ART. XV.—*Consumption: its Early and Remediable Stages.* By EDWARD SMITH, M. D., F. R. S., Assistant Physician to the Hospital of Consumption and Diseases of the Chest, Brompton, etc. etc. London: Walton & Maberly, 1862. 12mo. pp. 447.

DOES the clinical history of pulmonary tuberculosis include an appreciable period prior to the deposit of tubercle in the lungs? Few, if any, at the present time, regard this disease as primarily local. The deposit of tubercle is a result of an antecedent morbid condition of some kind, existing somewhere in the organism. This antecedent morbid condition is, in fact, the disease, of which the pulmonary tuberculosis is the local expression; we call it a cachexia or a dyscrasia, and our present pathological notions lead us to suppose that it involves some special blood-change. Not stopping to consider the soundness of this general doctrine, but assuming it to be most consistent with our existing knowledge, it follows that there is probably a period, prior to the deposit of tubercle, when the disease in reality exists. The disease exists when the cachexia has been produced; the cachexia precedes the tubercular deposit; hence, regarding these as consecutive events, it is reasonable to suppose that not only during the production of the cachexia, but after it has been produced, more or less time may elapse before the occurrence of the local expression of the disease. Now, the question is, does this period form an appreciable part of the clinical history of the disease; in other words, is this period accompanied by diagnostic symptoms? The author of the book, the title-page of which is placed at the head of this article, takes the ground that there is a period, prior to the deposit of tubercle, which is to be considered as a stage of the disease; he calls it the pre-tubercular stage, and he considers this stage as rendered appreciable by certain general and local symptomatic events.

The importance of the question which we have propounded is sufficiently apparent. If the tuberculous cachexia exist, for a greater or less period, prior to the tuberculous exudation, and we are able to determine the existence of the former before the occurrence of the latter, we may hope that the diagnosis during this period may be made of immense practical value. It is reasonable to suppose that at this period, more than at any other, the disease is amenable to proper management. We cannot doubt that the tuberculous cachexia may be removed, and it were gratuitous to discuss the advantage of removing it before the lungs are damaged by the deposit of tubercle. The only questions for discussion are, How are we to ascertain the existence of this pre-tubercular stage? and, What measures are to be pursued to effect the removal of the cachexia? Dr. Smith calls this a remediable stage, and the leading object of his work is the consideration of its diagnostic criteria, together with the management of the tuberculous disease. In view of the very great importance of the subject, we propose to review, in the first place, that portion of the work which treats of a pre-tubercular stage; and, in the second place, the therapeutical views which the author inculcates.

In seeking for the symptomatic phenomena which belong to a pre-tubercular stage, the attention is to be directed to symptoms referable to the pulmonary organs, as well as other parts of the body and the system at large, and to the physical signs. The author adopts this division of signs and symptoms, and considers the latter first. His method of investigation consists in inquiring of a large number of phthisical patients respecting the different functions of the body prior to the obvious manifestations of pulmonary disease. As a method of obtaining evidence of a pre-tubercular stage, this method is open to criticism. What proof have we that the various functional disturbances thus ascertained are either effects or concomitants of a tuberculous cachexia prior to the deposit of tubercle? They may have preceded the cachexia, and perhaps contributed to its production, being causes rather than consequences of it; or, on the other hand, they may not have preceded, but followed, the tuberculous deposit, the latter not having been at once manifested by obvious pulmonary symptoms. To determine with any degree of positiveness the symptoms of a pre-tubercular stage, we must have adequate proof of the non-existence of a deposit of tubercle after a certain epoch, and the date of the occurrence of a deposit must be fixed. These points can only be settled by careful physical explorations. Herein lies the difficulty of accepting the results of the author's inquiries of phthisical patients as evidence of a pre-tubercular stage. The symptoms which he ascertains may have preceded the cachexia, or they may have followed the production of the cachexia and preceded the deposit of tubercle; or they may have followed the deposit of tubercle. Their precise relations to tubercle are not determined, but, whatever these may be, as occurring antecedently to the obvious manifestations of pulmonary disease, they are interesting and important. We proceed to give succinctly the results of his inquiries.

The appetite was seldom natural, but was somewhat lessened in respect of food in general and of some foods in particular, and was commonly wayward and uncertain. It is worthy of being specially noted that fatty articles of food were less commonly liked than by persons who become affected with other diseases. There was commonly some derangement of the function of digestion, but frequently the derangement was small. The amount of food taken was commonly somewhat lessened. The assimilation of food was commonly defective, and the weight and bulk of the body were almost universally lessened.

The elimination of fluid by the skin was increased. There was a general tendency to defect of temperature of the body. The muscular power was commonly lessened. The circulation was commonly enfeebled and somewhat quickened. The menstruation was frequently disturbed, and there was much liability to leucorrhœa. Muscular pains about the chest were very common. There was commonly a state of hyperæsthesia of the throat. There was only a small or moderate amount of coughing, and a small amount of expectoration. In a majority of cases there was some degree of hæmoptysis. Much of the coughing and expectoration, and occasionally the hemorrhage, the author refers to the pharynx.

The foregoing conclusions, which the author draws from his interrogatories, are expressed in his own language. We have omitted details, some of which must have cost the author considerable labour, and also considerations explanatory of the supposed relations of the disordered functions to the tuberculous cachexia. We repeat, these results are not without interest and importance, but as furnishing diagnostic symptoms of a pre-tubercular

stage, they can hardly be considered as having much significance or value. Would the physician be warranted in predicating the existence of a tuberculous cachexia on the functional disorders just quoted? We think the reader will concur in the opinion that this question cannot be answered in the affirmative. We pass to the physical signs referable to the pulmonary organs.

The first sign mentioned is lessened movement of the chest. The diminished expansion, he affirms, exists in every case. It is general; that is, it is not confined to one side or to the summit, but extends over all the movements of respiration. The amount of inspired air is lessened, as shown by the spirometer, which the author regards as less fallacious than the inspection or measurement of the chest. The next sign is involved in that just noticed; viz., feebleness of the respiratory murmur. The author believes that this change invariably precedes the deposit of tubercle. He thinks that a diagnostic character of the weakened murmur which precedes tubercle, as compared with the weakness caused by general debility, consists in the fact that, in the latter case, the normal intensity of the murmur is brought out by forced breathing, while it is otherwise in the former case.

The author does not state how often he has found these signs present at a time when, as he believed, tubercular deposit had not taken place, in persons who subsequently became tuberculous. He does not state that he has even observed a single instance of this kind. We think he was bound to present the data on which his statements are based. Clinical observation, of course, can alone furnish the proper data for conclusions; *à priori* reasoning is inadequate. Nor is it sufficient to say, which the author does not, that these signs were found in persons who, it is believed, would have had a deposit of tubercle if proper measures had not been taken to prevent this result. In order to consider these signs as denoting a condition of the lungs in which a deposit of tubercle has not yet taken place, but will take place unless prevented, they must be shown to have existed in cases of confirmed tuberculous disease at a time when there was satisfactory proof that the deposit had not taken place. This evidence of their diagnostic significance the author may have obtained sufficiently for his own satisfaction, but he does not present it to the reader.

We must say that, were these signs proven to represent physical conditions which precede the deposit of tubercle, we much doubt their availability in diagnosis to any great extent. Diminished respiratory movements, lessened vital capacity, and enfeebled respiratory murmur, express deviations, not from any fixed normal standard applicable to all healthy persons, but to a standard of health proper to each individual. There are wide variations in these respects among different persons in health. All who have given much attention to examinations of healthy chests must be aware of this fact. To be able to judge, in any case, with respect to these signs, we must know the healthy standard in the person examined. This knowledge we seldom have, because persons in health do not present themselves for examination. This difficulty would not be nearly so great if the signs which have been mentioned were limited to a portion of the chest; we should then have the advantage of a comparison of the two sides. We confess we are unable to understand how the author can come to a conclusion respecting a general diminution of the breathing movements, of the amount of inspired air, and of the respiratory murmur, in individual cases, unless it have so happened that he is familiar with the patient's condition in these respects when in perfect health.



Dulness on percussion is another sign of the pretubercular stage to which the author attaches much importance. He thinks that, before the deposit of tubercle, there is an appreciable degree of dulness on the clavicles and over the chest in general. He attributes it to the absence of the full amount of air in the lung tissue. This dulness, although general, is apt to preponderate on one side. The remarks with reference to the diminished breathing movements and murmur are equally applicable here, in so far as dulness over the whole chest is concerned. If the practitioner be not familiar with the normal resonance of his patient, how is he to decide that it is abnormally diminished, in view of the wide differences, in this respect, in different persons in health? If relative dulness exist on one side, as compared with the other side, the first question is, may it not be owing to a normal disparity? A disparity exists to which the author does not refer. The right side, at the summit, is slightly dull as compared with the left side. This disparity is more or less marked in most healthy persons when percussion is practised with the care and delicate comparison of sounds of which the author speaks. The next question is, if the dulness be not due to the normal disparity, may it be fairly attributable to diminished expansion of lung prior to the deposit of tubercle, or does it not denote the existence of the deposit? We must confess that an abnormal dulness at the summit of the chest on one side, existing in a case in which subsequently unmistakable proof of tubercle was developed, would, for us, be evidence that tubercle already existed; in other words, the author adduces no facts which go to show that dulness precedes the deposit of tubercle.

We have cited the only signs which the author adduces as representing the condition of the pulmonary organs in the pretubercular stage. Assuming that, probably, such a stage in reality exists, and concurring fully with the author in the importance of its practical recognition, we are forced to conclude that he fails to indicate symptoms and signs sufficiently distinctive to be available in diagnosis, or facts adequate to establish its existence. The candor of criticism compels us to say this; but, in saying it, we would not disparage the value of the work as regards the interesting and useful considerations which it presents relating to the causation, pathology, and symptomatology of tubercle. While it does not claim to be a comprehensive treatise on the subject, we are sure that the medical reader will peruse it with gratification and profit.

The author considers not only the pretubercular stage of the disease, but its early and remediable stages. The experience of all practitioners will confirm the statement that, in the great majority of cases, tuberculous patients do not make application for medical aid until after the deposit of a greater or less amount of tubercle. It is an early and a remediable stage when the deposit is recent and the quantity small. Other things being equal, the disease is remediable in proportion to its short duration and the little damage to the lungs which the deposit has occasioned. We cannot but suspect that Dr. Smith has considered cases as in a pretubercular stage when a tubercular deposit already existed; but, waiving the discussion of this point, how vastly important is it to recognize the existence of a small deposit of tubercle! There is scarcely a problem in practical medicine of greater importance than the diagnosis of pulmonary tuberculosis shortly after the occurrence of the deposit. We should have been glad if the author had considered more fully than he has done, the diagnostic symptoms and signs of this stage of the disease. We believe that the diagnosis may be made in most cases at a very early period after the deposit has taken place.

We make this statement after a long and pretty extensive experience. But the diagnosis involves a degree of attention to physical signs which is bestowed by few practitioners. We hope not to be misapprehended in this remark. We are far from wishing to arrogate any special skill; we mean only that auscultation and percussion are not sufficiently studied by practitioners in general. A prevalent belief that practical skill is more difficult of acquirement than it really is, doubtless contributes not a little to a neglect which is much to be regretted.

We do not propose to consider the points involved in the early diagnosis of tubercle. To do this would require too much space, and, moreover, would, in this connection, be out of place. We will only say that the diagnosis requires a practical knowledge of the distinctive characters of physical signs, based on an analysis of the abnormal sounds, and a comparison with the normal sounds as regards differences relating to pitch, quality, intensity, and rhythm; it requires a practical acquaintance with the normal disparity between the two sides of the chest in the sounds obtained by auscultation and percussion, and it requires a fair amount of the judgment and tact which are only to be acquired by practice. The importance of the object should secure for the means of diagnosis more attention than they generally receive.

One-half of Dr. Smith's work is devoted to the treatment of tuberculosis. We find in this portion of the work no occasion to join issue with the author, but, on the contrary, much which we would commend to the reader's attention. Dr. Smith attaches far greater importance to hygienic measures than to drugs, in the treatment of the disease. This is a point to be impressed on the minds not only of practitioners, but of tuberculous patients. The latter must understand fully that the arrest of the disease is not to be effected by any special medication. Understanding this, they will place their dependence on those measures of diet and regimen which will not be likely to be properly carried out save with the conviction that the reliance is chiefly on these measures. For the successful management of tuberculosis, the faithful co-operation of the patient is essential, and failure of success not infrequently may be attributed to want of sufficient energy and perseverance on the part of the patient.

Dr. Smith regards the inunction of oils or fats as productive of a certain amount of benefit by restraining excessive elimination of fluids from the skin, and protecting the surface against atmospherical impressions. He considers its beneficial agency as altogether mechanical, attributing nothing to absorption. He prefers the ordinary spermaceti ointment for the inunction. It should be continued for several successive days, and then intermitted for a short time. Sponging the surface with cold water, followed by brisk friction, he recommends in the intervals when inunction is omitted, and habitually when inunction is not resorted to. Of the latter measure we can speak favourably from experience. There are few cases in which, with proper precautions, it may not be resorted to with advantage.

As regards clothing, his views appear to us highly judicious. The surface is to be protected against changes of temperature by garments worn next the skin, composed of materials which are good non-conductors of heat, and, with this protection, the body is to be kept cool instead of being over-heated. A superabundance of clothing is not less hurtful than a deficiency; perhaps even more so, on account of the loss of fluids by perspiration, and the increased susceptibility of the skin to atmospherical influences. An excess of clothing interferes with active exercise, owing to the encum-



brance, and the inconvenience from heat and sweating. Dr. Smith enjoins that flannel should be worn next the skin. Raw silk is perhaps an equally good non-conductor of heat, and may be substituted when preferred. But, in a cold climate, we think the chamois-leather jacket worn over light woollen or silk, is to be strongly recommended. It is sufficiently porous, and affords such substantial protection that cumbrous outer garments may be dispensed with. With the body properly protected, out-door life is to be advised, and exposure in almost all kinds of weather is not only admissible, but advisable. There is no hygienic measure in the treatment of tuberculosis of greater importance than this. In how many cases has a favourable progress in this disease been retarded, or prevented, by needless apprehensions of exposure and of over-exertion! We may here remark that tuberculous patients, as a rule, are not more prone to attacks of bronchitis or colds, than healthy persons; and, when such attacks occur, they do not appear to exert any marked influence on the tuberculous disease.

The author is fully impressed with the importance of abundant alimentation, and of supplying a proper variety of alimentary principles. Fatty articles should, if possible, form a fair proportion of the diet. The author remarks that some persons who have a disinclination for most kinds of fat, are able to take certain kinds without repugnance. He reckons alcoholics among the articles of food, and considers them as important, but not exerting any special anti-tuberculous influence. Many practitioners on this side of the Atlantic consider alcoholics as useful, remedially, in tuberculosis, and in this view we have participated. We are satisfied, however, that all are not benefited alike by them, and that, in some cases, they are not useful. They should never be given to the extent of affecting the brain, accelerating the circulation, producing perspiration, or inducing an indisposition to muscular exertion. The patient should be sensible of an agreeable and beneficial effect of their use; if not, they will not be likely to be useful. We would add to the articles which are especially useful, sugar. This should enter into the diet as largely as the taste of the patient will allow, provided it do not occasion disturbance of digestion. We are tempted to quote the author's directions as regards food in the early stage of phthisis. It will be seen how vigorously he enforces alimentation. Perhaps he pushes this part of the treatment to an extreme; but it is better to err in that direction than on the side of deficiency. Upon alimentation and out-door life, improvement and recovery depend vastly more than upon any of the other measures of treatment. We quote from the work as follows:—

“The patient should take from two to three pints of milk daily, prepared (and we would add *thickened*) with chocolate, arrowroot, flour, gluten, semola, oatmeal, or bread, or made with eggs, etc. into puddings. In cases where new milk does not agree, skimmed milk may be in part supplied, and then, if fats be tolerated, half an ounce of suet, cut finely, should be well boiled in each pint of milk and taken quite warm. The milk should be eaten in somewhat small quantities, say half a pint at a time; one quantity is to be taken immediately on the patient awaking in the morning, others at breakfast and supper, the milk pudding for dinner, and chocolate or coffee may be added to the milk which is taken at breakfast and tea. Food should further be taken at intervals of from two to three hours, and the dinner should be supplied soon after mid-day. Half a pint of good soup, with bread, may be taken between breakfast and dinner, and, if fats are not disliked, it would be better to prepare the soup from ox heads or shins, so as to supply both oil and jelly in addition to the juices of the meat, and the whole should be well thickened with groats or corn flour. Eggs, bacon or meat should be taken at breakfast, and abundance of fresh meat at dinner, with soup, pudding, and a moderate quantity of fresh vegetables, French beans,



and bread. The meat should be of the richest quality, and have at least one-third of its weight of fat. If the patient like salad oil, it may be eaten as freely as possible. A small quantity of cheese should be added to the dinner. An egg should be taken at the tea meal, and also at supper when milk is not taken. There should also be a cup of milk and bread and butter placed at the bedside of the patient, and eaten, if possible, during the night. Beer or wine may be taken at dinner and once or twice at other periods of the day, if it be found to agree with the system, and the dose be so moderated that it may not in the least affect the head, or cause heaviness in, and indisposition to move the limbs. Usually wine should be taken with hot water; but when the progress of the case is satisfactory, alcohols are not necessary. All food should be taken hot, and prepared so as to please the taste of the patient." (p. 329.)

The reader will perhaps be led to say that the author gives the patient but little time to do aught else than to eat. Exclusive of out-door exercise, he cannot do anything more conducive to his welfare. There is, of course, a limit to dietetic measures; the digestive powers must not be overtasked, but their fullest capabilities are to be made available, and this can be done by systematic, persevering efforts to a far greater extent than is generally supposed.

Dr. Smith recommends the practice of promoting expansion of the lungs by voluntary efforts of deep inspiration. Whatever advantage accrues from this, may be obtained, as it seems to us, by muscular exercise in the open air.

The remedies which he deems useful with reference to the arrest of tuberculous disease, are chiefly those which promote appetite and digestion. For these objects he advises the tinct. ferri sesquichloridi, or the citrate of iron and quinine, with some of the bitter infusions. Cod-liver oil is advisable when tolerated. For the cough he considers the best remedy to be 1-16th or 1-12th of a grain of morphia in mucilage or syrup.

The last seventy pages of the work are devoted to the climatic advantages of certain situations, viz., Scarborough, the Isle of Man, Scotland, Switzerland, various parts of England, the Nile, Pau, Madeira, and Rome. He presents details respecting humidity, mean temperature, etc., of several of these situations.

In taking leave of the work, we would express the hope that the author will furnish occasions for a renewal of our intercourse as a reader, if not as a reviewer.

A. F.

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ART. XVI.—*On Asthma; its Pathology and Treatment.* By HENRY HYDE SALTER, M.D., F.R.S. London, 1860. 8vo. pp. 372.

THE only sure foundation for the rational treatment of a disease, is an accurate knowledge of the pathological elements which it involves, and its separation as a morbid entity from all analogous affections, as well as from the phenomena which accidentally become attached to it. When this object has been attained, and then only, does it become possible to discover its pathogenesis, or accurately to determine the value and the mode of operation of the several remedies which are employed for its cure. So in chemistry the isolation of a substance from its associated substances forms the preliminary step to an investigation of its nature and habitudes. Without such an isolation of a disease, all discussions respecting its nature lead to

results as imperfect or erroneous as the estimate of a chemical element does which has never been examined except in combination. It is often claimed that the great glory of natural science in the present age is the application of a rigorous method of analysis to its study; but this is quite as true of human physiology and pathology as it is of any among the sister sciences. Indeed, if we examine the progress of medicine during the last half century, we shall be convinced that a very large proportion of it has been achieved by the separation of morbid states which were previously confounded, or which were only imperfectly distinguished from one another, and by the subsequent experimental application to each of them of different methods of cure.

Such a work has been performed for "Asthma" in the volume which we propose to examine, its object being to prove "that asthma is essentially, and, with perhaps the exception of a single class of cases (the humoral), exclusively, a nervous disease: that the nervous system is the seat of the essential pathological condition."

The author devotes some space to refuting certain theories, and particularly Dr. Bree's hypothesis that the phenomena of the asthmatic paroxysm are due to an extraordinary effort to get rid of some peccant and irritating matter existing in the air tubes. But this, we think, is labour lost; for the hypothesis is purely and simply gratuitous, nothing whatever having been brought forward by its author which is capable of affording it the slightest foundation. If he had possessed the light afforded by more recent observation, he would probably have modified his views so as to embrace the numerous instances cited elsewhere in the present work, which appear to prove that certain substances after digestion and absorption act as specific irritants upon the lungs. But this theory involves the element of spasm, which Dr. Bree did not accept. Equally illogical, and founded upon unreal pathological conditions, are the notions that asthma depends upon bronchial mucus, or upon thickening of the lining membrane of the bronchia. Evidently, these permanent conditions cannot be invoked to account for phenomena the characteristic peculiarity of which is their sudden occurrence in the midst of apparently good health, and often without the intervention of any palpable exciting cause. It deserves to be remarked, in the words of Sir John Floyer, that "the lungs do not appear to be much oppressed with phlegm before the fit; and at the end of the fit the straitness goes off before any considerable quantity is spit up." Dr. Mason Good quotes this passage as describing what he himself had witnessed, and in opposition to the theory of Dr. Bree, and elsewhere refers to the fact it describes as proving evidently "that the inner membrane of the bronchial vessels is in a state of peculiar dryness." (*Study of Medicine*, i. 557.) Certain speculatists conceive that there is a specific something circulating in the blood whose property it is to excite asthmatic attacks. We find, it is true, that particular articles of food, almost as various as the cases of the disease are numerous, tend habitually in the same person to develop the paroxysms; but these facts evidently prove the peculiar susceptibility of the patient himself rather than the special virulence of the noxious agent; they indicate, indeed, a nervous rather than a humoral pathology for the affection. The late Dr. Todd, like Dr. Bree, argued in favour of a special *materies morbi*, because, according to him, asthma in many points resembles gout. Dr. Salter thinks it worth while to state this theory at length and seriously to refute it. The reputation of its author may have seemed to require this trouble; the theory itself certainly did not.

During the prevalence of doctrines which emanated from the school of the pathological anatomists, it was difficult to procure belief in the existence of any disease which did not impress upon the organs a material change. When not even the primary lesions of the inflammatory process could be detected, a state called irritation was assumed to exist, which appears to have been a hypothetical organic *nus* towards inflammation. It had little in common with that sort of impression upon one portion of the nervous system which awakens action in another, and perhaps distant part, a phenomenon which belongs to the province of nervous pathology, and which, although formerly recognized distinctly, did not until recently become familiar as a mode of morbid as well as of normal action. It is, indeed, hardly to be wondered at, that the brilliant discoveries made of the connection between symptoms and organic lesions should for a period have blinded pathologists to the nervous elements of disease, and that the idea of purely nervous affections should have excited a feeling not unlike derision. We may, therefore, pardon so accomplished a physician as Dr. George Budd when, as late as 1840, he avowed his scepticism in regard to the existence of pure nervous asthma; and we cannot feel great surprise that Laennec himself should have been obliged to say that "among contemporary physicians, who have most cultivated morbid anatomy, many altogether deny the possibility of spasmodic dyspnoea, and most of the others are disposed to embrace the same opinion." In 1817, Rostan attributed all cases of asthma to diseases of the heart or of the great vessels. Broussais held the same doctrine; and in 1844, the learned commentator, Dr. Adams, wrote: "It seems likely that the paroxysm is occasioned by thick and viscid mucus infarcted in the lungs." Even M. Beau, the dexterous physical diagnostician, appears to have used his peculiar skill only as guide to error in this matter; for he, like the writer just named, attributes all the phenomena of asthma to bronchitis. Nor did he so in ignorance of the doctrine of bronchial spasm; since he blames those who maintain it for an undue deference to medical tradition.

There is another theory from which Dr. Salter dissents, not because it ignores the nature of the elements involved in asthma, but because it imposes a wrong interpretation upon the phenomena of the disease; it is that which attributes them to *paralysis* of the bronchial tubes. To this he objects as involving the supposition that the tubes are agents of respiration, a supposition to which, in common with Dr. Budd, he emphatically objects, because "respiration is under the influence of the will, while the contraction of the bronchial tubes is essentially involuntary." According to Dr. Budd, we should, therefore, by quickening the respiratory acts, speedily cause the proper accordance between the dilatation of the chest and that of the bronchia to cease, and the one to dilate while the others were contracting. This would, certainly, be the case if the rate of movement of the muscles of the bronchia were uniformly the same; but for such a supposition there is no ground whatever. The muscles of the heart, of the intestines, &c., contract more or less rapidly according to the more or less frequent renewal of the stimulus which excites them, and no idea of normal muscular contraction of the bronchia can be conceived which does not imply its perfect reciprocity with those general thoracic movements which are involved in the respiratory act. To say that respiration "is under the influence of the will," implies the movement at a quicker or slower rate of *all* the muscles concerned in that act, bronchial as well as thoracic; and we are not authorized to assume for the latter and deny to the former a



subjection to volition, when it is evident that both must move simultaneously, or at least co-ordinately. Besides, it is scarcely correct to oppose these two sets of muscles as voluntary and involuntary. The thoracic muscles have the one character or the other, according to circumstances. However we may, for a limited period, by an act of volition, control the rate of their movements, they are none the less involuntary muscles during sleep and in all other states of unconsciousness.

But because the movements of the bronchial muscles must be synchronous with those of the chest, whatever their rate of motion, it does not follow that, in asthma the former are paralyzed. Nor do we perceive the validity of the admission made by Dr. Salter that this view would lend a ready explanation to "the extreme difficulty and prolongation of expiration." On the contrary, it would seem as if the air should be more rapidly expelled in expiration if the bronchia opposed no obstacle to its escape, such as would exist if they were contracted, provided the contractility of the lungs remained unimpaired. Another reason which, in the opinion of Dr. S., favours the paralysis theory, is "the permanent state of distension at which the chest is kept during the asthmatic paroxysm." But if this state does not exist, as an essential part of the paroxysm (which we shall endeavour to make probable), the theory is no longer to be entertained.

The second chapter of the present work sets forth the doctrine, which it is one of the author's principal objects to expound, viz., that asthma is essentially a nervous disease. This proposition is very fully and very ably demonstrated. The causes, it is shown, are chiefly such as operate upon the nervous system, among which mental influences hold a conspicuous place, and particularly sudden alarm and other emotional excitements. These are equally remarkable for suspending or arresting the paroxysm in many cases. The most efficient remedies are from among those which act upon the nervous system, and in an especial manner certain narcotics and antispasmodics. The periodical recurrence of the attacks, and particularly their proneness to take place at night when the susceptibility of the nervous system is peculiarly alive; the copious excretion of limpid urine, the neuralgia and frontal headache, the antecedent drowsiness and languor, or, on the other hand, the unwonted hilarity and animation which often precede the paroxysms, are phenomena of the same class.

The second proposition of Dr. Salter is—

"That the phenomena of asthma—the distressing sensation, and the demand for extraordinary respiratory efforts—immediately depend upon a spastic contraction of the fibre-cells of organic muscle, which minute anatomy has demonstrated to exist in the bronchial tubes."

After showing that these phenomena are not to be ascribed to heart disease, bronchitis, or emphysema, the author calls attention to the fixed and rigid immobility of the thoracic walls, and the absence of respiratory murmur during the paroxysm, even while the external muscles are labouring by violent action to move the chest. In other words, the distress of the patient is evidently owing to the difficulty which the air experiences in reaching the pulmonary vesicles, not because the external muscles prevent it—for their action is intermittent, and, as far as it goes, would tend to dilate the chest and introduce the air for lack of which the patient is suffering—but because the muscles of the bronchia themselves diminish the calibre of these canals, and, by preventing the ingress of air, render the efforts of the external muscles abortive. An additional evidence of this fact is the existence of sibilant

rhonchi and wheezing, which can only be caused, in the absence of mucus, by the irregular contraction of the tubes themselves.

"Thus we see," remarks Dr. S., "by evidence as certain as sight, that in asthma bronchial spasm must and does exist, and that no other conceivable supposition will explain the phenomena."

The author then alludes to the anatomical proofs of the existence of circular muscular fibres in the bronchia, even to their minutest divisions, and points out how wide-spread their connection is with various organs through the vagus nerve, the cervical portion of the sympathetic, and the anterior and posterior pulmonary plexus. He also refers to the experiments of Volkmann, Williams, and others, which prove that the bronchial tubes undergo contraction, even to complete occlusion, from the application of various stimuli both to the tubes themselves and to the trunks of the pneumogastric nerves.

It would, we think, have added force to the author's reasoning had he informed his readers that the doctrine of the muscularity of the bronchial tubes, and of the spasmodic nature of asthma, dates far back of the discoveries and experiments to which he alludes; far back, also, of the demonstration of the circular fibres by Reisseissen (1821), which Dr. Copland claims as his own, and Cruveilhier adjudges to himself; and even from an earlier period than Cullen, of whom Dr. Budd says, "Since the time of Cullen, the muscularity of these fibres has been adduced to explain the symptoms of asthma." Indeed, after WILLIS wrote, the existence of bronchial muscular fibres was as fully admitted as that of the muscles of the larynx itself. Nothing can be more explicit than the description which this author first published in 1673. After describing the straight and circular fibres of the trachea, he says:—

"The coats of the bronchia have muscular fibres of both kinds; from whence we may conclude that all the lesser pipes of the aspera arteria have their constant turns of systole and diastole, viz: all the pipes are contracted when we breathe out, and relaxed while we suck in air."

This, let it be remarked, is also the very furthest and latest conclusion of modern physiology on the subject.

When Willis would explain the phenomena of asthma, he says:—

"The animal spirits destined to the function of breathing . . . enter inordinately into the fibres, as well *nervous* as *moving*, of the organs of breathing, and make them for that one cause one while to be contracted, another while to be distended, irregularly, as also their solemn and equal turns of systole and diastole to be variously disturbed and hindered." (*Of the Medicines of the Thorax*, 1684.)

Finally, he places the immediate cause of the paroxysm either—1, in the muscular fibres; or 2, in the nervous branches; or 3, in the brain. If for *brain* we write *nervous centres*, we shall find in Willis the essence of the modern pathology of asthma.

Let it be further remarked that Willis refers to the belief of the ancients, and of his own cotemporaries, that all asthma depends on mechanical obstructions of the air-passages, while he himself admits asthma from mechanical, and asthma from spasmodic—or, as he terms them, convulsive—causes. He even goes further, and points out how an asthma which was at first mechanical only may become convulsive also, just as we see spasmodic asthma superadded to dyspnoea produced by vesicular emphysema.

"Hence," he says, "it may be concluded that every asthma is a mixed affec-

tion, stirred up by the default partly of the lungs ill-formed, and partly by a default of the nerves and nervous fibres appertaining to the breathing part."

If we apply this remark to the confirmed disease, it expresses precisely what the most recent and accurate observation has taught.

BONETUS, the cotemporary of Willis, in France, and scarcely less eminent, followed in the same doctrine. There are, he says,

"Several causes of dyspnœa;" the air tubes may be "choked up, compressed, or too closely contracted." . . . "The branches of the trachea sometimes, *their fibres being spasmodically affected*, are too much drawn up and quite closed, and prevent the ingress of air necessary for respiration. Hence, although no obstruction exists in the lung, or any malformation, or any consumptive diathesis, yet these fibres being preternaturally convulsed, and at the same time contracted, terrible paroxysms of asthma often occur." (*Sepulchretum*, i. 385.)

Again, in England, a few years later (1698), was published a work which is still, and must remain, a classic in the literature of asthma. In this, Sir JOHN FLOYER says (p. 8):—

"The muscular fibres of the bronchia and vesiculæ of the lungs are contracted, and that produces the wheezing noise which is most observable in expiration."

And again (p. 43):—

"This contraction of the *vesiculæ* is very probable, because the bronchia are contracted and the *vesiculæ* have the same muscular fibres to help respiration, by which they may be drawn up so as not to admit air."

Muscular fibres of the vesiculæ! Once more a literal anticipation of the farthest reach of our anatomical research, advanced as we are more than a century and a half beyond Floyer upon the road of scientific discovery.

Without going back to Van Helmont, who, even before Willis, attributed the phenomena of asthma to spasm of the air-tubes, we must not omit noticing the testimony of that giant among modern physicians, FREDERIC HOFFMANN. In 1707, he wrote as follows:—

"While the diaphragm, the intercostals, and the *sensitive membrane which everywhere lines the pulmonary cells* are spasmodically contracted, the capacity of the chest is contracted, expansion of the lungs is prevented, the entrance of sufficient air into the lung-cells is hindered," &c. (*De Asthmate Convulsivo*, 1707.)

In studying such a subject as this, we must not forget to consult WHYTT, who in so many points was in advance of his scientific cotemporaries. He defines (*Observations*, &c., 1764, p. 260) spasmodic asthma to be—

"That species of difficult breathing which is not owing to any obstruction in the lungs, or load of humours compressing their vessels, but to an *uncommon contraction of their bronchial tubes and vesicles*, whereby they do not yield as usual to the pressure of the air in inspiration."

CULLEN, too, a few years later (1772) wrote, "The proximate cause of this disease is a preternatural, and, in some measure, a *spasmodic constriction of the muscular fibres of the bronchiæ*."

It appears, then, that from the time of Willis, at least, the distinction of nervous asthma from dyspnœa produced by physical causes was fully recognized, and that during nearly the first half of the present century those who would not admit it to be a disease because it left no lesion in the body, were as ignorant of the subject as the ancients were, but without the same excuse for their ignorance. It appears further that they who ascribe our more accurate knowledge of the nature of asthma to the dis-



covery of the bronchial muscles by Reisseissen, or other cotemporary anatomists, are but imperfectly acquainted with the literary history of asthmatic affections.

It is unnecessary to enumerate the names of all among more recent pathologists who have taught the doctrine that nervous asthma depends on bronchial spasm. But some of them may be referred to. Laennec (ii. 179) says:—

“When full inspirations are inadequate to make the air reach the pulmonary vesicles, the fact can be attributed only to a *spasm of the vesicles themselves*, or, at least, of the small bronchial ramifications.”

The same doctrine is maintained by Georget, Lefèvre, Copland, Wunderlich, Grisolle, Romberg, Trousseau, Walshe, and all others whose conclusions are authoritative.

It may be proper to mention that Dr. Budd (*Med.-Chir. Trans.*, xxiii. 62) and Dr. Kidd (*Dub. Quar.*, May, 1861, p. 296) attribute the phenomena of asthma to spasm, indeed, but spasm of the *external* muscles of respiration. It is sufficient to reply that the *external* muscles are not in a state of sustained spasmodic action in this disease, and except in tetanus they never are. In a word their contraction during the asthmatic paroxysm is voluntary and intermittent, while the dyspnœa is sustained and more or less permanent, and such as would be occasioned by involuntary muscles in spasmodic action.

As we have seen, among the objectors to the theory of bronchial spasm is Dr. Budd. He details some experiments with the galvanic apparatus applied to different portions of the air tubes, and declares that no contraction can be produced by its means either in the bronchial tubes or in the trachea. He also quotes the experiments of WEDEMAYER to the same purpose. But, evidently, by proving too much they prove nothing. For the merest tyro in anatomy can demonstrate the muscularity of the trachea.

But it has been conclusively shown by the microscope and by physiological experiment that the bronchia are provided with muscular and contractile fibres. LONGET (*Physiol.*, i. 646, 1859), after detailing some experiments with the galvanic current on the pneumogastric nerves, and referring to the investigations of KÖLLIKER and MOLESCHOTT, concludes not only as to the certainty of the existence of muscular fibres in the minutest bronchia, but also as to the probability of their presence in the vesicular structure. He even maintains that such a supposition is necessary; for the act of expiration, either by the relaxation of the inspiratory muscles alone, or also with the active co-operation of the external expiratory muscles, would be unable to expel the mucus or even the foul air contained in the ultimate bronchia. Consequently, he argues, these bronchial and vesicular muscles are essential to the renewal of the air, to the permeability of the bronchia, and the maintenance of the respiratory function.

Quite recently Dr. RADCLIFFE HALL (*Braith. Retros.*, xlv. 76), without apparently being acquainted with LONGET's argument, says:—

“The smallest bronchial tubes are the most muscular;” . . . . . “they contract rhythmically in quiet normal respiration, and by so doing quicken the expulsion of foul air from the air-cells, and accommodate the size of the tubes to the lessening bulk of the lungs.”

He also holds that they contract partially towards the close of the inspiratory act, completing the propulsion of the air to the vesicles which the external muscles had begun, just as the capillary arteries by their own con-

tractility propel the blood further which they received from the action of the heart and larger arteries.

It is no objection to this view that it implies a power in the minute bronchia of propulsion in either direction. A similar power is exerted by the stomach in ordinary vomiting, and by the small intestine when the vomiting is stercoraceous; also by the urethral muscles when they draw into the bladder foreign bodies placed in the urethra, and even by the vagina and uterus when they carry the seminal fluid to the ovaria.

Let it be added, however, that the doctrine of Dr. R. Hall, however original, is not new; it dates really from the last century.

In 1751 Whytt (*On the Vital and Involuntary Motions of Animals*, p. 170), speaking of the active agents in respiration, said: "The muscular fibres of the bronchia, by their contractile power, contribute to the expulsion of the air out of the lungs."

To return from this digression. Dr. Salter continues his demonstration by showing "that the phenomena of asthma are those of excito-motory or reflex action." Often they are developed by a mechanism similar to that which excites cough, the presence of some offending agent in the bronchia themselves, as various effluvia, dust, and other minute particles; more frequently gastric impressions made by irritating or too abundant food; sometimes by accumulated fecal matter; occasionally by a remoter impression still, as in a case where the attacks were brought on by the application of cold to the instep. In some rare instances the source of irritation producing the paroxysm appears to be central, as when an attack has preceded brain disease, or has taken the place of habitual epileptiform convulsions. Cases in which the cause of the attack is mental are evidently of central origin. Much importance is attached by the author to the *humoral* source of the paroxysms in numerous cases. Besides the reflex operation of gastric irritants through the pneumogastric nerve, the direct action upon the nerves of the lung by the products of digestion is, in his opinion, to be charged with producing asthmatic attacks. In many instances this effect appears to result, not from any intrinsically noxious quality of the articles of food employed, but to a special susceptibility to be influenced by some which are in themselves perfectly wholesome. The same peculiarity, it has already been stated, is noticeable in regard to effluvia. The articles of food which are prone to produce these effects are, in general, such as are crude and indigestible, among which may be mentioned cheese, nuts, raisins, confectionery, salted and highly seasoned food, and fermented drinks. Dr. Salter meets the very natural objection that these ingesta may occasion asthma by a reflex and not by a direct action on the lungs, by stating that they induce asthma in just such time as they would take to reach the lungs subsequent to their absorption, and that, as a general rule, in persons afflicted with an appropriate susceptibility, the rapidity with which the attack comes on depends upon the facility with which the particular article of food is absorbed. Thus, in a case which is referred to, the attack always followed immediately after taking wine or any alcoholic drink; while in another the food producing asthma was such as would furnish material for lacteal absorption, and the attack did not come on until two hours after the food was taken. In spite of these cases, the author is careful not to insist too strongly on the humoral origin of asthmatic attacks, remembering how often the susceptibility in question is associated with unquestionable dyspeptic disorder.

We cannot better conclude our notice of this portion of Dr. Salter's

Essay than by stating, in the author's own words, the connection between the muscularity of the bronchial tubes and the phenomena of asthma.

"The purpose of this muscular furniture of the bronchial tubes is," he remarks, "that they should contract under certain circumstances, and on the application of certain stimuli; and seen by this light we recognize in asthma merely a morbid activity—an excess—of this natural endowment; the tubes fall into a state of contraction with a proneness, a readiness, that is morbid; the slightest thing will throw them into a state of spasm, the irritability of the muscles is exalted, the contraction violent and protracted, that becomes a stimulus to contraction which should not be, and the nervous and muscular system of the lungs is brought within the range of sources of irritation applied to such distant parts as ordinarily in no way affect them. Any healthy man may have his bronchial tubes temporarily thrown into a state of asthmatic spasm by the inhalation of ammoniacal or carburetted or other irritating gases; but only by such materials whose exclusion is necessary for the safety of the lungs, will this natural asthma be brought about. A greater degree of bronchial sensibility is shown in those cases, by no means uncommon, of what is called 'hay-asthma,' in which the stimulus to bronchial spasm is the effluvium of hay; a still greater, in those cases, much rarer, in which the emanations from ipecacuan powder will at once give rise to asthma; a still greater in that numerous class of cases of asthma in which the disease is called into activity by certain atmospheric peculiarities which are altogether inappreciable, as where an attack of asthma is inevitably brought on by going to a certain place, living in a certain house, sleeping in a certain room. All these cases fall strictly under what we may call the formula of health; they are physiological; they are instances of the contraction of a muscular tube in obedience to stimulus applied to the mucous membrane that lines that tube; the nervous system engaged is the *intrinsic* nervous system of the tubes, its own ganglia and perceptive and motor filaments, in the same way as in œsophageal deglutition or intestinal peristalsis; the error is merely a morbid exaltation of a normal irritability. But there are other cases in which the error is more than this, in which the nervous apparatus involved in the phenomena is abnormally extended; in which certain outlying and distant parts of the nervous system are the recipients of the stimuli that give rise to bronchial spasm, as in those cases to which I have referred, where an attack is induced by an error in diet, a loaded rectum, the application of cold to the instep, mental emotion; in which the gastric filaments of the pneumogastric nerves, the sympathetic, the cutaneous nerves of the foot and the brain, are respectively the recipients of the stimulus that gives rise to the bronchial contraction. In the former class of cases the bronchial spasm takes place in obedience to the wrong stimulus applied to the right place; in the latter, place and stimulus are alike wrong. . . . In what, then, does the peculiarity of the asthmatic essentially consist? Manifestly, in a morbid proclivity of the musculo-nervous system of his bronchial tubes to be thrown into a state of activity; the stimulus may be either immediately or remotely applied, but in either case would not normally be attended by any such result. There is no peculiarity in the stimulus; . . . nor, probably, is there any peculiarity in the irritability of the bronchial muscle; the peculiarity is confined to the link that connects these two—the nervous system, and consists in its perverted sensibility, in its receiving and transmitting on the muscle, as a stimulus to contraction, that of which it should take no cognizance. . . . These considerations, I think, tend to rationalize our notions of asthma, and to impart at once an interest and an order to its phenomena."

The clinical history of asthma is very fully related by our author, and in very graphic language, but our limits will not admit of any extracts. Among other things, he dwells upon the fact that the attacks so generally commence between three and six o'clock in the morning, illustrating the supremacy obtained by the excito-motory functions during the suspension of the will by sleep. He elsewhere (p. 178) points out the degree to



which sleep exalts nervous action. He has omitted noticing, however, one of the most familiar examples from this class of facts, the occurrence of spasmodic croup uniformly at night, and its limitation to certain families or to individual members of such families, proving that in this disease, as in asthma, a special susceptibility is usually necessary to bring on an attack. Occasional exceptions to the law of nocturnal occurrence of the paroxysms are met with. M. Trousseau mentions one in which the attacks came on uniformly at eight o'clock in the morning, and Dr. Salter relates the singular case of a night porter who slept only by day, but who, nevertheless, had his fits of asthma about five or six in the morning when he was up and awake.

Dr. SALTER offers some remarks in regard to the capacity of the chest during the paroxysm, which have induced us to make it the subject of a little comparative analysis. His statement is as follows (p. 75):—

“One result of the straining efforts to fill the chest is a permanent distension of it—its walls are kept fixed in a condition of extreme inspiration. So great is the enlargement of the chest during the paroxysm, that any article of dress that would ordinarily fit the waist cannot be brought together by two inches. But the chest is enlarged in every other way, the diaphragm therefore descends, the abdomen therefore seems fuller, and its girth is increased.”

One of the most eminent of German physicians, WUNDERLICH, makes a somewhat similar statement, as follows:—

“One form of asthma consists in a gradual augmentation of the dyspnoea, which reaches its maximum at the end of two or three days. At this stage the chest is almost motionless in spite of the most violent muscular efforts; the respiration rises to 60 or 80 in a minute, but is short and gasping; coarse sibilant and sonorous rhonchi are heard all over the lungs, the percussion resonance is everywhere preserved, and after many hours the limits of the chest are extended downwards. The liver also descends, the heart is thrust into the epigastrium, and the thorax is excessively distended.” (*Pathologie*, iii. 316.)

GRISOLLE (*Pathol. int.* ii. 745) says, “during the paroxysm the chest is resonant, often unnaturally so.”

Dr. KIDD, also (*Dublin Quar.*, May, '61, p. 202), intimates that authors who have made a contrary statement did not know by actual observation what they were talking about, and assures us of his belief that a contracted “state of the thorax never exists in spasmodic asthma.” On the contrary, he remarks, “the thorax is distended to its greatest extent . . . so as to produce great fulness of the abdomen, and cause the heart's impulse to be felt at the scrobiculus.” “The great difficulty,” he concludes, “is to empty the chest.”

It may appear singular that in regard to a point of simple ocular observation there should be a divergence of opinion amounting to contradiction among different medical writers upon the subject of asthma. It will not do, with Dr. Kidd, to say that successive writers have copied from one another. This may be true of certain among them who compiled what they read rather than described what they saw; but it will not apply to the greater number, from some of whom the following citations are made.

We have already seen that HOFFMANN declares the capacity of the chest to be contracted during the paroxysm.

LAENNEC (ii. 386) describes the percussion resonance as *very moderate* in many cases.

Dr. C. J. B. WILLIAMS, one of the first English followers of Laennec, says:—

"When bronchial spasm is considerable, the chest *may sound ill on percussion* . . . . with a short, tight sound like that which the chest yields on forced expiration. This is caused by the *contracted state of the lungs* when under the influence of bronchial spasm." (Lib. Pract. Med., iii. 145.)

ROMBERG tells us (i. 328):—

"The patient feels that the air *does not pass beyond* a certain point of his thorax.' When the attack ceases suddenly, 'the air rushes violently into the bronchi and pulmonary vesicles into which it *had previously been precluded from entering*, and a puerile murmur is produced.'"

LEBERT (ii. 38) says: "During the attack, *the percussion pitch is raised.*"

WALSHE (p. 424) declares that "there is little or *no true inspiratory expansion,*" and "the resonance on percussion *is slightly impaired.*" Finally, not to multiply citations, Dr. FLINT (p. 397) makes the following explicit statement: "If emphysema be not present, the volume of the lungs may be reduced by the expiratory efforts so as to diminish appreciably the clearness on percussion."

These authors are all original observers, and of the first rank, and yet they agree in making statements to which that of Salter, Wunderlich, Grisolle, and Kidd are diametrically opposed. Now, it would seem almost certain that on the one side or the other, there had either been an error of observation, or in the statement of its results. On the one hand, increased percussion resonance has certainly existed, but on the other hand, in a different set of cases, it has not been present. The passage that has been quoted above from Wunderlich probably explains in some degree this contrariety of statements. This author mentions that after *two or three days* of asthma distention of the thorax is observed. The persistent and prolonged struggle to inspire air tends, by straining the pulmonary tissue, to dilate the vesicles and expand the chest; and, however ineffectual this effort to inspire may be at the commencement of the paroxysm, successive repetitions of the act may add to the amount of air locked up, and, if the attack be a long one, gradually distend the lungs and render the chest resonant upon percussion, where it had previously exhibited diminished resonance. If, then, there are any cases in which at the commencement of a paroxysm the percussion resonance is unnaturally great, there would seem to be a strong probability that they present the complication of emphysema; and if this supposition is correct, *dilatation of the chest is not a characteristic symptom of pure nervous asthma.*

That it *is* probably correct may be inferred from the extreme rarity of *pure nervous asthma.* It is, in fact, one of the rarest among diseases of the lungs. Thus, LAENNEC (*op. cit.*, p. 385) declares—

"I have found evidence of pulmonary spasm in a very small proportion of asthmatic patients independently of all complication with pulmonary catarrh. Nevertheless, I am able to affirm that this condition exists."

WUNDERLICH informs us (*op. cit.*, p. 312) that, in the course of six years, he found but three cases of it among ten thousand clinical patients.

VALLEIX (*Guide du Mèd.*, ii. 562) remarks that, "in the Parisian hospitals, where pulmonary diseases are so carefully studied, cases of nervous asthma are almost never met with."

SANDRAS, in his treatise on Nervous Diseases (ii. 148), after describing some cases of the affection, says: "These exceptional cases constitute nervous asthma."

And, finally, Dr. SALTER, himself, remarks:—

“Cases of *perfectly pure* asthma, that is, without the slightest organic complication, are, however, rare, unless they have existed a very short time, and for this reason—that asthma, if it is at all severe and its attacks frequent, *cannot long exist without inflicting permanent injury on the lungs, and even on the heart.*”

We cannot follow Dr. Salter in his further analysis of the phenomena of the asthmatic paroxysm, but merely remark that it displays, like the rest of his pathological disquisitions, great familiarity with the phenomena of the disease and accurate reasoning from them. Nor can we dwell upon his interesting illustrations of the periodicity of the attacks.

We merely note, in passing, his statement, that their diurnal occurrence furnishes good grounds for suspecting that they rest upon an organic basis, and also his confirmation of the general testimony of authors that the attacks are more frequent in summer than in winter. The periodicity of asthma, he remarks, is of two kinds; that which depends upon the periodical recurrence of its evident exciting cause, and that which appears to be intrinsic, or, in other words, independent of external circumstances.

It appears, as indeed seems but natural, that the cases which come on in youth and in early manhood, are generally specimens of the pure spasmodic form without organic complication, and, moreover, that they are usually examples of the hereditary transmission of the affection. According to Dr. Salter's observation, twice as many males have asthma as females. We notice that Frank gives the proportion as much larger, viz., as six to one.

The immediate or exciting causes of asthmatic attacks, are generally direct irritants inspired; alimentary irritants; remote sources of nervous irritation, and psychological irritants. Examples of each of these will occur to every reader. The essential causes, our author concludes, may be organic lesions, perhaps inappreciable, either in the bronchial tubes or in some part physiologically connected with them; or else, may consist of some congenital, possibly inherited, peculiarity of constitution, whose nature it is not possible for us at present to apprehend. It may be urged, we think, that an “inappreciable organic lesion” is, practically, something difficult to distinguish from an “idiosyncrasy.” It is easy to believe that a certain palpable lesion or peculiar organic condition may be an efficient cause of asthma; but if a lesion ceases to be appreciable, it also ceases to give proof that it exists. In the illustrations adduced by the author, the existence of a lesion is inferred, but not proved.

Although asthma never kills, it may, according to our author, produce certain organic changes in the heart and lungs which ultimately prove fatal. Repeated paroxysms may occasion hypertrophy of the bronchial muscles, and thus diminish the calibre of the tubes, and the bronchitis which so generally complicates the spasmodic affection must still further lessen the supply of air in respiration. It is also remarked, that the greater or less degree of asphyxia existing during the paroxysm shows that the pulmonary circulation is overloaded; serous effusion takes place constituting œdema of the lungs, and the right side of the heart becomes dilated and hypertrophied. Associated with or following these effects emphysema is developed. This last result is ascribed to the strain upon those pulmonary lobules to which the air has access, while the rest are closed by spasm or obstructed with mucus. It is to be observed that all the elements here referred to, except bronchial spasm, are characteristic not of asthma but of



emphysema following or accompanying bronchitis independently of any asthmatic complication. To explain through them the development of emphysema in asthmatic persons, is clearly to interpolate causes with which asthma has no necessary connection, and which of themselves are quite sufficient to develop emphysema of the lungs, if an organic predisposition to that disease exists. It is true, that Dr. Salter speaks of having "seen emphysema developed in a case of asthma in which bronchitis never existed." Yet it is certain that the latter disease is not unfrequently the precursor of emphysema, while pure asthma is very rarely, if ever so; hence, we cannot admit any direct causative connection between the nervous and the organic affection. But, still further than this, emphysema is by no means confined to cases in which either asthma, or bronchitis, or heart disease, has previously existed; it more frequently arises spontaneously. This is a fact long ago insisted upon by Louis, who, as well as other writers, has also shown that the disease is very often hereditary, and independent of all exciting causes, and particularly of pulmonary catarrh. It would appear most probable that emphysema is produced by organic conditions involving a diminution of muscular power rather than an excess of it; first, because it oftenest arises without any strain from cough or dyspnoea; and secondly, because, when bronchitis precedes it, the mucous and muscular coats of the bronchia must lose contractile power instead of gaining it. It is also important to remark that emphysema could not be produced by asthma unless the habitual state of the lungs during the paroxysm were one of extreme distention. So long as the chest remains contracted, the strain upon the vesicles, far from being increased, is really less than usual; and it is only towards the end of prolonged paroxysms that the vesicular structure can become dilated. We have endeavoured to prove that constriction, and not expansion, is the ordinary state of the chest during the attack, and the bearing of this proposition upon the relation of emphysema to asthma, will be now apparent.

In considering the treatment of asthma, Dr. Salter first mentions the depressants ipecacuanha, tartar emetic, and tobacco, of which he regards the last as the most speedy and effectual. They afford relief by relaxing the bronchial spasm, and terminating it by reducing the power which generates it. Stimulants, on the other hand, put an end to the attack by exalting the nervous energy above the point at which the reflex susceptibility, on which the spasm depends, has a tendency to display its power in producing muscular contraction. That involuntary and spasmodic muscular action has a peculiar tendency to take place during sleep, the time when the asthmatic paroxysm usually occurs, has already been referred to as a physiological fact. Hence we may explain the usefulness of coffee, tea, alcohol, ammonia, cannabis, ether, and other nervous stimulants in preventing the attacks. Of these, the most favourable judgment is given for coffee. Under the title of "sedatives," as distinguished from "depressants," the author refers again to tobacco, Indian hemp, opium, and stramonium. Undoubtedly these medicines are sedatives of abnormal nervous action, but, except in poisonous doses, they are stimulants, and, in virtue of their stimulant action, assuage morbid nervous action precisely as alcohol allays the "horrors" of the drunkard, or quiets the jactitation, subsultus, and tremors of typhus fever.

Chloroform belongs to the same category. It is by its primary and stimulant operation, and when it is administered in small doses, that it so marvellously arrests the paroxysm of nervous asthma. A case is mentioned by Dr. S. in which a few whiffs of chloroform sufficed to afford relief, and, before insensibility was produced, the breathing was free. Where a marked

bronchitic affection exists, the full influence of the medicine would manifestly be dangerous. Objection is made to the use of opium in this disease, and we think with reason. Its stimulant operation can scarcely be obtained without being speedily followed by its narcotic action, and this tends to embarrass rather than to relieve the respiratory organs. In the use of stramonium, the author does not appear to have had much experience, nor to have formed as high an estimate of its virtues as they deserve. Of lobelia, he confesses that he has nothing to say; and the little that he says of sulphuric ether is unfavourable. The inhalation of the fumes of burning nitre paper is a method not, indeed, originating with himself,<sup>1</sup> but one more fully tested by him than by any person who has published his experience in the treatment of asthma. It is evidently his favourite remedy. Its value, he remarks, is in proportion to the purity of the asthma; that is to say, its freedom from organic complications. It was of little use, he found, when the case was complicated with bronchitis. He advises the following mode of preparing and using it:—

“Dissolve four ounces of saltpetre in half a pint of boiling water; pour the liquor into a small waiter, just wide enough to take the paper; then draw it through the liquor and dry it by the fire; cut it into pieces about four inches square, and burn one or two pieces in the bedroom on retiring to rest at bedtime.”

The paper should be unsized, porous, and not containing wool. Red blotting-paper, of moderate substance, is recommended.

Dr. Salter lays down the proposition that asthmatics are generally dyspeptics in a greater or less degree, and furnishes some illustrations of the influence exercised by a disordered stomach upon the recurrence of the attacks, and especially of the mischief occasioned by late and abundant dinners. In this connection, he reminds us again of the greater liability which exists during sleep to all excitatory impressions, and especially to those which originate in the stomach. All of his precepts are sound, and they possess, what should have been more distinctly recognized, the sanction of long and universal experience. Floyer, in his chapter on this subject, says emphatically: “Asthmatics are best fasting, and under very frugal and simple diet.”

One of the most interesting chapters of the present treatise is “On the Therapeutical Influence of Locality.” It is there shown by a number of cases that a very large proportion of the asthmatics who come from the country to London are relieved during their residence in that city. The most general principles, or rules rather, which he believes to be deducible from experience in this matter are—

“That the localities that are the most beneficial to the largest number of cases are large, populous, and smoky cities;” and “that the worse the air for the general health, the better, as a rule, for asthma; thus, the worst part of cities are the best, and conversely.”

To these rules, however, the exceptions are numerous, and it is no

<sup>1</sup> The first published account of this treatment that we have met with is contained in the *New York Med. Gaz.*, i. 375. It was copied into this Journal (Jan. 1842, p. 262), and the editor subjoins: “We can add our testimony to the utility, in some cases, of this remedy. We have several times prescribed it, and in some instances the relief it afforded seemed almost magical; in others, however, it entirely failed.” A subsequent reference to the medicine is contained in the *London Lancet*, 1845, i. 383, and ascribes the writer’s knowledge of the remedy to a paragraph accidentally seen in a newspaper.

uncommon thing to find that a particular locality as certainly prevents the paroxysms in one person as it excites them in another. Floyer suffered asthma from childhood until he went from his home in Staffordshire to Oxford, where he resided for twelve years without any considerable fit. He also remarked the greater immunity of asthmatics from their fits in towns, but thought them more severe when they did happen. A similar result of his own observation is given by Troussseau. We believe that the rule also holds in this country. Upon this subject we need make no apology for quoting the following passage from the writings of one of our most sagacious and experienced physicians, the late Professor Chapman :—

“The pure air of the country, especially in elevated positions, I have found, with very few exceptions, more pernicious than that of cities, and even the suburbs of these less propitious than the central and populous parts. Many instances have come under my own view of persons affected in this way, who, very comfortable in the latter, were rendered otherwise in the former situation, among which is that of a friend of mine who can seldom walk to the edge of the city with impunity, and never goes into the country without an attack. It sometimes happens, too, that individuals may spend the day comfortably in any rural position, though on the approach of evening they are unavoidably seized. Three or four instances of the kind I have known, and of which there is now living in Baltimore a gentleman by whom I am informed the fact is strikingly illustrated in himself. Close to the town he owns a villa remarkable for its general healthiness, at which he has not slept for many years on this account—escaping, however, all intimations of an attack during the day.” (*Lectures on the Diseases of the Thoracic and Abdominal Viscera*, 1844.)

The beneficial influence of sustained bodily exertion is insisted upon very strongly by our author. This, too, is held by Floyer to be an essential part of the treatment, for he assures us that “they who use no exercise in the intervals of the fits soon fall into cachexias, lethargies,” &c.; and he advises “riding, sawing, bowling, ringing of a dumb-bell,” &c. The avoidance of cold and dampness, and especially of the breathing of damp cold air, is very properly dwelt upon by Dr. Salter as closing one of the principal avenues through which attacks of the disease come on.

By a singular oversight, the author states that he is not sure that the inhalation of oxygen gas has ever been tried. Its use in asthma by Hill, in 1800, is mentioned in so familiar a text-book as Pereira’s *Materia Medica*; it had still earlier been recommended by Beddoes and Watt in their treatise on *Factitious Airs*; Chaptal and also Fourcroy tried it in asthma; the authors of the *Compendium de Médecine Pratique* remark that “this agent, which, on theoretical grounds, should have been very efficacious, has not fulfilled the hopes which were entertained of it,” and the late Dr. Chapman said of it, “it is dead, and gone to the ‘tomb of all the Capulets.’”

The prognosis in spasmodic asthma is, according to Dr. Salter, generally favourable in young patients, but it grows less favourable with advancing age. It need scarcely be added that the prospect of recovery is very much clouded by the presence of any permanent complication either of the lungs or heart. The length of the attacks, their frequency, the rapidity and completeness of recovery from them, their tendency to increase or diminish in number, and the possibility of discovering their immediate exciting causes, are all to be taken into the account, precisely as they should be in any other spasmodic disease.

From the preceding survey, the reader may be enabled to form some idea of the substance and manner of Dr. Salter’s treatise, but not such an one as to dispense him from the obligation, or to tempt him from the pleasure,



of studying the original. It abounds in the fruits of original observation; its descriptions are full and lifelike; its reasoning is, for the most part, cogent and satisfactory; and its style is remarkably fresh, sprightly, and clear. If a second edition should be published, we shall hope to find in it more frequently due credit given to the older writers for the essential agreement of their views with those which Dr. Salter has so fully and perspicuously expressed.

A. S.

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ART. XVII.—*General Report of the Commission appointed for Improving the Sanitary Condition of Barracks and Hospitals.* (Presented to both Houses of Parliament by command of Her Majesty. 1861.)

A RECENT report of a royal commission on the sanitary state of the army having shown that the annual deaths among all arms on home stations had reached the great height of 17.5 per 1000, whereas the mortality among males of the same ages, in the town and country population of England and Wales, was at the same time only 9.2 per 1000 (little more than one-half), another commission was appointed by the Secretary of War, consisting of Dr. John Sutherland, W. H. Burrell, and Douglas Galton, engineers, to inquire into the causes of this excessive death-rate, and to devise means for their removal.

For this purpose, they were commanded to "examine and inquire into the sanitary condition of all barracks and military hospitals in the United Kingdom, as regards their position, neighbourhood, construction, drainage, water supply, lavatories, laundries, baths, kitchens, water-closets, latrine arrangements, urinals, means of ventilation, lighting and warming, both by day and by night, the dimensions of the barrack-rooms and sick wards, the arrangements of, and the distance between, the beds, the supply of bedding and utensils, the amount of cubic space per bed in barracks and hospitals, the state of repair of the buildings, the condition as to cleanliness of wards, barrack-rooms, and other buildings, and of their vicinity; and into all other matters connected with the buildings which, in your opinion, may be prejudicial to the health of the soldier."

In addition to this important inquiry, the commission were enjoined to "devise the necessary works and measures required for removing defects in the drainage, for the abolition of cesspools, for the formation of improved drainage, for improvements in water-closets, latrines, and urinals, for providing lavatories, baths, and laundries, for thoroughly and efficiently ventilating all barrack-rooms, wards, and day-rooms, for warming and lighting by day and night, and for improving the kitchens in all barracks and hospitals."

They were further instructed to allot, whenever practicable, in *barracks* and *guard-rooms*, not less than 600 cubic feet to each man, and three feet to intervene between every two beds; while in *hospitals*, 1200 cubic feet were to be allowed for each bed, four feet between the sides of the beds, and twelve feet from foot to foot, when practicable.

These instructions, thorough and minute in every hygienic particular, were coupled with authority to expend a sum not exceeding £100 for each hospital or barrack so inspected; and, whenever that sum was insufficient,

they were to make estimates and plans, to be submitted to the proper department for examination and allowance.

With these very liberal and praiseworthy powers, the commission immediately proceeded to the work, and the result of their labours is exhibited in the book before us.

The total number of barracks in the United Kingdom, to which their inquiry referred, amounts to 243, of which 162 were personally examined and reported for improvements; of hospitals, there are 167, of which 114 were personally inspected and reported on. The remaining barracks (81) and hospitals (53) are nearly all small, with accommodations for few men only; the inspection of and report upon these were left to a subsequent period, in order not to delay the improvements which were found to be greatly needed in the larger and more important places. A general remark made by the commission, with reference to the financial limit to which they were restricted in executing sanitary improvements, is worthy of note, as one which might have been expected after the statement of the great mortality of the army at home in a time of peace.

“The amount of funds placed at our disposal—namely, £100 per barrack—was found to be totally inadequate even for the more urgent sanitary works, because, although large sums of money have been from time to time spent on these barracks and hospitals, *a very small portion of it appears to have been devoted to sanitary purposes.* So far, indeed, as concerns the health of the troops, almost every barrack and hospital we have visited can be considered in no other light than as *never having been completed.* \* \* \* \* In every instance, therefore, we have been under the necessity of having estimates prepared for sanitary works.”

Such is the care which the government of Great Britain has been wont to bestow upon its immediate dependents—an almost total neglect of, next to feeding and clothing, the first essentials of health and life; and the consequence has been a mortality nearly double that which the men would have experienced had they remained civilians, and pursued their ordinary industrial avocations. An analysis of the diseases which led to this high rate of mortality demonstrated that the excess of deaths was due almost entirely to zymotic diseases, such as fevers, cholera, diarrhœa, and to chest and tubercular diseases, such as consumption, &c. Seven-ninths of the entire mortality among the infantry of the line were found to arise from these two classes of diseases; and, for each class, the mortality among the infantry was shown to be *more than double* what it is among males of the same ages in civil life. Can any circumstance be mentioned more damaging to the character of the English government for humanity and common sense?

Nor can we be surprised at this result, when we have learned the details of the unsanitary condition of these homes of the soldier, as they are set forth in this interesting volume. With regard to the *position and neighbourhood of barracks*, the whole number is divisible into two classes. 1st. Those which are situated in the suburbs of towns, in positions hardly any of which can be said to be unhealthy, while very many of them cannot be described as otherwise than healthy; sometimes elevated above the neighbouring levels, with sufficient fall for drainage; sometimes occupying lofty eminences, fully exposed to the winds. This class, it is said, comprises by far the greater number of barracks inspected. The 2d class consists of those situated in or near densely-populated neighbourhoods, and closely surrounded by dwellings of the civil population. Of these, several instances

are quoted; some inclosed within lofty walls in such a manner as to keep the air about them stagnant at all ordinary times. Portman Barrack, for example, "is a closed square of two-story buildings, with regulation space for 483 men, surrounded on all sides by higher walls," and having within cubic space for only 276, or a little more than one-half the required amount.

"Not unfrequently, barrack-rooms are built close to the privies of adjoining houses, and nuisance is experienced in the barrack-rooms." "Ship Street Barrack, Dublin, overlooks a street of filthy houses, behind which pigs are kept, and nuisance is experienced when the sties are cleaned." "Piershill Barrack and hospital, near Edinburgh, is in an open situation, but in the immediate vicinity of meadows irrigated by the sewage of the town." "Tilbury Fort is surrounded by a wet, undrained, marshy district of country, particularly exposed to malaria; and, whenever it is occupied, a large proportion of the men are sure to find their way into hospital from intermittent fever."

As a striking instance of the influence exerted upon the health of the soldier (as well as of all other people) by the locality of their residence, the contrast is drawn between the average mortality of all arms, previous to 1853—which, as already stated, was 17.5 per 1000 per annum—and that at Aldershot and Shorncliffe, where the troops were encamped in an open country. In the three years ending Dec. 31, 1859, the mortality among them was only 4.7 per 1000 per annum—about one-quarter.

The *construction of barracks* next claims attention, and in this respect it is stated that they exhibited great diversity of plan, and still greater diversity in internal arrangements and proportions. While some of the plans, especially those of certain Irish barracks, are good, convenient, and well adapted to health, "of the great majority, the plans are very indifferent, and there are not a few of which the plans or construction, or both, are essentially bad." The attributes of a healthy barrack appear hardly to have been considered; facility of supervision and of discipline, and the amount and shape of the ground at the disposal of the architect, seeming to be the only guides in their arrangement, and, what is more remarkable still, "the best barracks are not those of recent construction, but are found among the Irish barracks built in the end of the last century or early in the present one."

As a specimen of defective arrangement, a figure of the ground-plan of Hyde Park Cavalry Barracks is given. These were

"Constructed to accommodate 536 non-commissioned officers and men, with a proportionate number of horses, on a long strip of ground 3 acres, 2 roods, 35 perches in extent. The buildings for men and horses are crowded into three acres of the area, which, if the barracks were fully occupied, would equal a density of population of 114,560 to the square mile, exclusive of women, and children, and horses. The actual number in barracks when we inspected them was 385, besides women and children. The situation towards the park is open; but it will be seen that there are fourteen blocks of buildings on the ground, *so disposed as effectually to cut off free air currents from the square*. There are no back premises, and the litter and manure are thrown out directly under the windows of the barrack-rooms and of the corridors giving access to them. The rooms are over the troop stables, and the whole place smells of ammonia."

It would have been particularly instructive to know the mortality among the occupants of the Hyde Park Barracks, thus conducted, in the very heart of London; but it does not appear to be given in the report.

Equally bad, in point of arrangement of buildings and over-crowding, were the Wellington Barracks. Of the seven acres and over of ground pertaining thereto, three are covered with large blocks of buildings, con-



taining regulation space for 1530 non-commissioned officers and men, giving a density of 326,000 inhabitants per square mile, for the built area, being nearly double that of East London, which is one of the most densely populated town districts in England. The great defect in this instance, as in many others named, is in the buildings being so arranged, with regard to each other, as to prevent the free circulation of air around, among, and through them.

Crowding buildings together, placing them in hollow squares, or with narrow dark lanes between lofty three or four-story buildings, without any outlet to prevent stagnation of air, with the ground rising rapidly behind them; placing the men's rooms immediately over the stables, with the smell of the privies constantly pervading the kitchens; destitution of sufficient light and ventilation; without adequate means of cleanliness—such is the external manner of the buildings in which, to a large extent, the army of England has been kept, according to the report of her own examiners. The internal arrangements, as from this may be readily supposed, are equally insalubrious: as, for example, placing barrack-rooms back to back, with windows only on one side, and no thorough draft; constructing barrack-rooms over stables; providing means of access to the rooms by long internal corridors, or by corridors covering one side of the rooms; providing accommodation for non-commissioned officers by wooden bunks inside the men's rooms, so as to obstruct light and ventilation; omitting to provide proper staircases, and taking space for stairs out of the barrack-rooms; using basements for barracks, &c. &c.

“Errors in plan and construction, similar to those enumerated above, exist to a greater or less degree in the majority of the barracks we have visited, but they are to be seen in the most aggravated form in buildings which have not been originally erected as barracks, but have been adapted to that object.”

“Arbour Hill Barrack, Dublin, was once a prison, and, as such, was not fit for prisoners. It is now a barrack for 91 men. If it were proposed to restore it to its former use, no inspector of prisons would be justified in sanctioning it.”

Another similar instance is mentioned of an old French prison at Cork, and several of the conversion of factories, shops, castle halls, combining all the evils imaginable as dwellings.

Such, in brief, was the lamentably unwholesome condition of the Soldiers' Homes of one of the most aristocratic nations of the earth in the nineteenth century, when this commission probed the evils to the bottom, and set about the necessary reform. This, under the liberal powers granted them, they appear to have done thoroughly and scientifically. Everything that can influence the sanitary condition of the barracks and hospitals has received their minute and particular attention, even to the nature and colour of the material best adapted for wall and ceilings. In fact, every hospital government, and every architect, may study the principles of construction and arrangement, laid down in this volume, with advantage. Never before has such a sanitary work been carried on to such an extent, and the one hundred neat and well explained figures, illustrating the defective plans and those approved and adopted by the commission, give abundant facilities for the thorough understanding of the text. In fact, the report is a thorough exposition of the true principles which should be put in practice in military barracks and hospitals everywhere, and a chapter on the “General Sanitary Principles applicable to the Arrangement and Construction of Fixed Camps,” is also given.

To the subject of *Ventilation of Barracks* the commission appear to

have given a large portion of their consideration, as its great importance demanded, and the report contains a very minute and intelligent account both of the theories adopted and the plans executed for the purpose. We should like to give our readers the benefit of the whole of this part of the report for the double purpose of showing that a familiarity with this topic, both in philosophy and practice, in a medical man, is not only not beneath his dignity, but that without it, he is but half prepared for the discharge of his professional duties. We are able, at present, however, to give only the following quotations and descriptions. A discussion of the methods of *Ventilation by Propulsion*, by means of the fan, the screw, and the pump, is followed by illustrated descriptions of five several modifications of ventilating apparatus which were seen in operation by them—viz., Arnott's chimney valve; Sherringham's iron air-brick, or box, communicating directly with the external air; Watson's & Mackinnell's double current tubes; and Muir's square tube, divided into four parts. These are all regarded as having special advantages in certain cases, chiefly guard-rooms, but they were found inapplicable to barracks and hospitals, as not complying with all the requisitions of volume, variety of situation, avoidance of cold currents, &c.

"The following is the problem requiring to be solved in ventilating a barrack: *In a building consisting of a number of rooms, generally entered from common passages or staircases, sometimes directly from the outer air, and each having an open fireplace, which it is essential in every instance to retain, how to supply at all seasons and temperatures, and by day and night, each room by itself, and independently of every other room, with a sufficiency of air to keep the room healthy, and at the same time to prevent the temperature from falling below what is required for the comfort of the men. To do this with the least possible interference with the structure of the rooms, on a plan not easily deranged, and at a minimum of cost?*

"The terms of this problem show at once the difficulties in the way of ventilating barracks. None of the methods we have seen in use afford anything like a solution of it, and we have had to consider the whole problem anew. We have endeavoured to solve it, and we believe we have succeeded in doing so to an extent sufficient for all practical purposes.

"*Amount of Fresh Air per Man required.*—We began the work by endeavouring to ascertain approximately the amount of fresh air required to keep a sleeping-room healthy. Various attempts have been made at different times to settle this amount scientifically, but nearly every experimenter has arrived at a different estimate of the quantity.

"These differences in opinion have arisen from not sufficiently considering the various offices, already mentioned, which fresh air has to perform in the ventilation of human dwellings, and from not looking at the practical rather than the scientific side of the question.

"One set of experimenters have based their calculations on the quantity of air required to dilute the carbonic acid, produced by respiration, down to the proportion in which that gas exists in the external atmosphere. Other experimenters have taken the amount of air required to dissolve the aqueous vapour escaping from the skin and lungs, and to diffuse it so as to raise the hygrometric state of the air to the same healthy standard as that of the outer atmosphere.

"The estimates are hence very various, and differ to the extent of two, three, or four times, as to the amount of air required for health; a difference which proves how little is yet known scientifically on the subject.

"The practical argument as to the amount of fresh air required to ventilate a room is, in our opinion, of far more weight than the scientific one. We find, for example, that nature has provided in the atmosphere unlimited extent and constant means of purification and of movement.

"The building of dwellings interferes with these natural conditions, by inclos-



ing air in confined spaces, saturating that air with impurities, and rendering it stagnant. It may be fairly argued, as indeed has been proved by experience, that those dwellings are the most healthy in which the natural conditions of the atmosphere are most perfectly preserved. Chemistry has told us distinctly enough that at least 200 cubic feet of air per hour is required by a human being, for the mere purposes of diluting the carbonic acid and water given off from the body to the same standard as they exist in the atmosphere itself. But chemistry takes no cognizance of those aerial poisons eliminated from the skin and lungs, and which in stagnant air are perfectly cognizable to the senses, even after the air has been diluted to the extent stated. Indeed, the object to be served by ventilation is, primarily, the dilution and removal of the poisonous exhalations, and if this be secured the carbonic acid and water will be removed at the same time.

"Few persons are, perhaps, aware that an ordinary barrack fireplace removes a much larger amount of air than is required merely to dilute the carbonic acid and water to a healthy standard. The quantity varies, of course, with the section, height, and temperature of the chimney flue, and also with the force and direction of the wind.

"The extremes may be practically assumed at from 6000 cubic feet per hour up to ten times that amount. A twelve-men room, affording 500 cubic feet per man, would, on the lowest estimate, have 500 cubic feet of air per man per hour supplied to it by the chimney draft alone; that is to say, the fire grate will insure a ventilation above twice as great as will fulfil the requirements of chemistry; and yet it has been ascertained by sufficient experience that rooms so ventilated are both offensive and unwholesome.

"The result is, no doubt, partly attributable to the point of the room from which the foul air is drawn; for, although carbonic acid, like every other gas, diffuses itself equally through the cubic contents of a room, those poisonous, organic compounds, to which we have referred, are detected by the senses most strongly near the ceilings of apartments, as, for instance, in the galleries of unventilated churches, theatres, &c.; so that in all rooms ventilated only by the fireplaces, there is a reservoir of foul air situated above the range of its ventilating power. The fireplace may be made an admirable adjunct to ventilation, but by itself it is certainly not sufficient for the purpose.

"The sense of smell affording the chief indication of the healthiness or unhealthiness of a room atmosphere, and differing as the delicacy of this sense does in different individuals, it is not, perhaps, possible to arrive at an absolute standard of ventilation; but in order to obtain some practical estimate of the quantity of air required to preserve the air of a barrack-room sufficiently pure, and of the size of shafts and inlets required to insure this amount, we had airshafts having certain definite sections carried from the corners of the ceilings of twelve barrack-rooms, in the Wellington Barracks, up through the roof, so arranged that the apertures might be contracted, and the quantity of air passing up each shaft measured by a delicate anemometer constructed by Naumann, of Paris, for the express object.

"The measurements were taken at different periods, during several months, between two and five o'clock in the morning. The requisite observations of temperature without and within the rooms, and of the hygrometric state of the air, were also taken, and the sensible state of the room atmosphere was observed at the same time.

"From these observations, as well as from others which we have been enabled to make, we are of opinion that an estimate on which we based our first improvements in ventilation, is sufficiently near the truth for practical purposes. It is as follows: That in a barrack-room containing a number of men, at 600 cubic feet per man, the whole air of the room should be renewed at least twice in the hour. In other words, that each man should have in round numbers 1200 cubic feet of fresh air supplied to him per hour. Even this amount may not be sufficient to preserve a barrack-room entirely free of odour at all times and seasons; but the difficulties of a thorough solution of a problem where the conditions are so variable, have led us to adopt this as our unit of ventilation, while in the ventilating plans we have carried out, it is always possible to increase the



amount without difficulty. After our plans had been some time in operation, we were glad to learn, from a report on the warming and ventilation of dwellings, made to the General Board of Health by Messrs. Fairbairn, Glaisher and Wheatstone, that a similar unit, namely, from 15 to 20 cubic feet per man per minute, had been arrived at by these gentlemen. But while adopting this unit, we hold it at the same time to be an indispensable condition, that each man should have the amount of space, 600 cubic feet, recommended by the Royal Commission."

"*Principle of Ventilating Barrack Rooms.*—The next point is to determine what should be the principle of ventilation adopted. We have decided, after a careful consideration of the different methods which have been in use, to keep each barrack room independent of every other in respect to ventilation, and to depend for the movement of the air in barrack rooms upon the fire-place and upon the element of the difference of temperature between the air outside and the air within. According to the law of dilatation discovered by Dalton and Gay Lussac, atmospheric air, in the process of being heated from the freezing to the boiling point of water, increases in volume 0.375, or about  $\frac{3}{8}$  of its original bulk, which gives a dilatation of a little more than 0.002 for every degree of Fahrenheit. If the air inside a room were 20° Fahr. warmer than the outside, the air in the room would be expanded to a twenty-fifth part more in bulk, and would be to that extent specifically lighter than the outside air. The colder air outside has thus a tendency to press upwards the warmer, expanded and lighter air within the barrack room, for which at present there is no outlet."

In accordance with the law here enunciated, each room was provided with a shaft whose sectional area was adjusted to its length and the number of inmates of the room. A more proper rule governing the dimensions of the shaft, would be the cubic space of the room; but this would answer only in cases in which the number of occupants would conform to the cubic area—a circumstance which was hoped for in the future.

In rooms on the top floor, shafts were recommended of a sectional area of one inch to every fifty cubic feet of room space; for floors next below the upper, one inch to every fifty-five feet, and in barracks of three floors, an area of one inch to sixty feet was required for the lowest. The velocity of the air in the shaft, and hence its ventilating power, will depend, 1st, on the difference of temperature between the inner and outer air; 2d, on the length of the shaft; 3d, on the amount of friction in the shaft; and, 4th, on the freedom, or otherwise, with which the air to supply the shaft enters the room.

In giving these as the elements which alone govern the velocity, and consequently the quantity, of the air passing through such shafts, the commissioners have omitted the mention of another which has as much, if not more, influence over the result as any other, and that is the *shape of the shaft*.

It will be readily admitted that the current of air through a shaft whose upper, or discharging extremity, is contracted to a smaller area than its lower, or receiving extremity, must necessarily be more or less impeded from the double cause of increased friction of the air in the tube, and the *crowding* of it at the point of discharge. In a shaft of parallel sides, *i. e.*, of equal calibre through its whole length, there will be some friction, but no crowding at the point of exit, unless it should happen that by any means the air should become raised in temperature as it passes through, and by its consequent increased expansion it should press against the sides of the shaft. All of these obstructions, however, are entirely overcome, and the through passage of the air facilitated, by a slight gradual enlargement of the area of the shaft as it advances in length. By this gradual enlargement, the shaft obtains the shape of a trumpet, and the column of air

within it, if set in motion by any means, will find more and more room as it ascends, and it will consequently expand to fill the partial void, or at least will not infringe upon the wider sides of the tube, and thus avoid the impediment of friction, at the same time the partial vacuum invites a more rapid *inflow* below. The form here alluded to has been successfully adopted in factory chimneys, where a powerful draft is required; and has also been very successfully applied to ventilating purposes.

Care must be taken, however, not to increase the calibre of the shaft too rapidly, in other words to make the egress of air in too great disproportion to its ingress; otherwise, the action of the shaft will be counteracted by opposing currents at the outer end. The proportion of increase in size has been in practice, in those cases which have fallen under our observation, limited to one inch increased diameter of a circular shaft for every twelve inches in length. Within this limit the action is found to be greatly increased, while beyond it, counteracting currents seem to be produced in greater or less degree.

Although the application of this principle of the expanding tube appears to have been but recently applied to chimneys and ventilating shafts, it is nevertheless as old as the circulation of the blood. John Hunter took great pains to prove that the aorta had its diameter enlarged as it proceeded from the heart, and that the areas of the branches of an artery were greater than the diameter of the parent trunk. This principle in the flowing of liquids, whereby the friction of the fluids against the sides of the containing tubes is avoided, is just as applicable to currents of gaseous fluids, and, as we have several times seen demonstrated, is a highly valuable aid in ventilation of buildings. With the addition of the conical form to the ventilating shafts of the British barracks, the commissioners would doubtless have perfected their arrangements.

But, as correctly stated by the commissioners—

“A ventilating shaft and a chimney-flue are not of themselves sufficient to ventilate a room. If a room has two fire-places, they will draw against each other, and the fire-place with the strongest draught will supply itself by drawing the smoke down the other chimney, unless it can obtain an air-supply with a smaller expenditure of force. For a similar reason, if a closed barrack has no other means of ventilation than a foul air-shaft and a chimney flue, the fire-place will certainly supply itself by drawing air down the shaft, and troublesome down drafts will be produced. It is essential, therefore, to provide inlets for air to supply both the fire and the ventilating shaft.”

It was determined, on this reasoning, to furnish each barrack room needing them, with “inlets for fresh air,” and further, it was decided to place them close to the ceiling, to afford opportunity for the air to be disseminated as widely as possible over the room, before being drawn away by the fire, or the foul air shaft. In barrack rooms of ordinary size, two inlets were recommended on opposite sides of the room, a greater number for larger rooms. These inlets were made of iron or perforated air bricks; to prevent unpleasant draughts, a triangular wooden box covered the inside opening, which received the air at the cornice, and a perforated zinc plate which formed the upper side of the box, distributed the air in an upward direction, and as it struck the ceiling it was diffused over the room. Inlets near the floor were discarded, for the double reason that the soldiers would close them, and the current through them would not mingle freely with the air of the room, but pass more directly to the grate and be drawn up the chimney.



"*Ventilation of Stables under Barrack Rooms.*—In every cavalry barrack, having men's rooms over stables, we have endeavoured as far as possible to diminish the risk of effluvia passing into the men's rooms through the stable buildings, by carrying up four shafts one from each corner of the stable, to above the roof. These shafts have a total conjoint area of twelve square inches per horse. Their object is twofold: to improve the ventilation of the stable itself, and to prevent the accumulation of foul air at the ceiling of the stable. Where it has been necessary to carry these shafts through the men's rooms, they have been lined inside with soldered zinc, in order to obviate any risk of leakage within the room. We have found ventilation by *four* shafts, one carried up from each corner, with inlets for fresh air, similar to those for barrack rooms, but without the covers, by far the most satisfactory method for stables with rooms of any kind over them. For stables without rooms over them, a raised ridge forms the best outlet, with a row of perforated bricks under the eaves to act as inlets for fresh air."

Thus were the means for maintaining a pure atmosphere varied by the commissioners to suit the circumstances of each room, or building, according to its size, its position, its uses, &c. In some instances Arnott's silk-flap valve, in others Muir's or Mackinnell's double current ventilator, or perforated glass panes in the windows, or Sherringham's ventilator (an iron air brick, or box, inserted close to the ceiling, and affording a direct communication with the external air) was employed, and thus did they indefatigably regulate the atmospheric condition of every room of every kind in all the barracks and hospitals of the United Kingdom. The ventilation of gas burners also came within their observation, and was effected by a funnel over the jet, conducting the air from it to the chimney or a ventilating shaft.

In addition to the ventilation of these important institutions, every other matter connected with their sanitary condition came under the observation and correction of the commissioners, and the results of their labours is a monument to their fidelity and intelligence, an example to all the world.

Improvements in warming and lighting; in water supply; in drainage, latrines, and urinals (of which copious pictorial illustrations are given), in ash and manure pits; in ablution rooms and baths (Stirling Castle is the only barrack in which a *drinking fountain* in use was found in all Great Britain); in cook-houses and cooking apparatus; in wash-houses and drying closets—all were undertaken and accomplished in the most thorough manner possible.

The amount of labour performed by the commissioners may be inferred by the fact which we gather from the appendix to the report, that out of the 164 barracks inspected and "doctored" by them, there were only five in which the regulation number of inmates did not exceed the allowance of one man to each 600 cubic feet of air, the excess varying from 9 (the barracks of the Royal Engineers at Portsmouth) to 1364 (at Chatham). So also with regard to the 114 military hospitals examined; there were but 6 in which 1200 cubic feet of air were allowed to each bed, a great majority having less than 700, and a large number less than 500.

In the construction of hospitals, the great points to be secured are:—

1. Purity of external atmosphere.
2. Abundance of pure air and sunlight within the building.
3. Facility of administration and discipline.

Acting on these principles, the report proceeds with a thorough digest of the particulars to be observed in the selection of proper sites, with a notice of such external evils as should be avoided; the isolation of hospitals;



the test of healthiness of sites; the plan and construction of the buildings; the position of the beds; the size and number of windows; arrangement of wards and ward offices, and administrative offices; the number of sick under one roof, and all with reference to the three recognized varieties of hospitals, viz.:—

1. The Regimental Hospital, single or consolidated.
2. General hospitals.
3. Camp, or temporary hospitals.

Several plans for each of these varieties are given, to which no description unaccompanied with the engraved designs can do justice, or render comprehensible. As the latest, and doubtless the best authority on the various topics discussed, this volume is peculiarly valuable to us at the present time, and from personal observation of several of the general military hospitals erected since the commencement of the rebellion, we know its pages might have been consulted with great advantage to their plans of construction and arrangement, which, it is evident from their defects, has not been the case. In too many instances, the proposition laid down by the commissioners, as the great object sought in the construction of a hospital, to which everything else is only subsidiary, has been overlooked on this as well as on the other side of the Atlantic, viz.: *the recovery of the largest number of sick men in the shortest possible time.*

On the subject of the *ventilation of tents*, which the commissioners justly regard as one of the most important necessities of camp life, and the neglect of which is a prolific source of disease, they give some good advice, though we should have been glad to see a more elaborate discussion of that point. They are content with simply recommending “ventilating openings of sufficient size around the tent pole.” In this connection we are pleased to be able to say that to our own country belongs the credit of being the first to use a *well ventilated tent*, and one that combines with this improvement another highly important one, viz.: arrangement by which the men are raised above the ground when asleep, thus avoiding the evils incident to contact with the cold wet soil. This is accomplished by an ingeniously devised system of *hammocks*, which are stretched in a very simple and secure manner on the wooden bars forming the frame-work of the tent, and which, when removed in the day time, leave a free space of the whole interior of the tent—a great advantage over all other forms of beds, which necessarily occupy the floor during the day as well as night. We regret that this tent has not been more generally introduced into the army. J. H. G.

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ART. XVIII.—*The New Sydenham Society.* Vol. XI. *Selected Monographs:* CZERMAK *on the Practical Uses of the Laryngoscope*; DUSCH *on Thrombosis of the Cerebral Sinuses*; SCHROEDER VAN DER KOLK *on Atrophy of the Brain*; RADICKE *on the Application of Statistics to Medical Inquiries*; and ESMARCH *on the Uses of Cold in Surgical Practice.* London, 1861. 8vo. pp. 329.

CZERMAK's brochure was originally published in the German language, at Leipzig, in 1860, under the title of *Der Kehlkopfspiegel und seine Ver-*

*werthung für Physiologie und Medizin.* In June of the same year, a French translation appeared in Paris from the pen of Dr. L. Mandl. Of this French edition, a literal English translation has been executed for the Sydenham Society by Dr. G. D. Gibb, with the sanction of the author, who has enlarged the work by the addition of an appendix on Rhinoscopy, together with some notes and sketches.

This monograph is the second edition, as the author calls it, of all the articles published by him in various medical journals in 1858 and 1859, in which he has made it his study to bring into scientific and practical use the manifold applications of the *principle* of Liston and Garcia's method of inspecting the larynx.

The Sydenham Society has acted very judiciously in giving to this essay an English dress, inasmuch as the persevering and well-directed investigations recorded therein have been especially useful in bringing about a recognition of laryngoscopy as a most valuable aid, on the one hand, to the physiologist in reference to the mechanism of phonation, and, on the other, to the practical physician in regard to the diagnosis and nature of various pathological conditions of the laryngeal apparatus. The passing hint embodied in a few lines of one of the paragraphs of Liston's *Practical Surgery*, and the more definite mechanical suggestions of Avery and Garcia, have been so brilliantly realized in the labours of Professor Czermak that his monograph upon the subject will always occupy an important place in the literature of this branch of medical research—a literature which we may say, *en passant*, has already been enriched during the last three years by contributions from Türk, Gerhardt, Battaille, Merkel, Sieveking, and other well-known observers.

A case of formation of a thrombus in the superior longitudinal sinus, which fell under the notice of Prof. Th. von Dusch, of the University of Heidelberg, led to the publication of the interesting paper on Thrombosis contained in the volume under notice.

The formation of thrombi in the venous system during life is a subject of much pathological interest. Although cases of this affection have been recognized in various writings since the days of Morgagni, the conditions under which they most frequently occur, and the effects of their formation, have not been clearly understood until quite recently. By Hunter, they were considered to be exudations upon the inner surface of inflamed veins. They were afterwards shown to be true coagula, and were supposed to be the result of phlebitis—a view to which Cruveilhier gave the sanction of his authority. The investigations of Virchow have shown, however, that phlebitis is seldom followed by coagulation of the blood in the inflamed veins, and that, on the contrary, in the large number of cases, the formation of coagula in the veins precedes the inflammation in them. Dr. Dusch has collected and critically analyzed quite a large number of cases of thrombi occurring in the cerebral sinuses from various causes. From his investigations, he draws the following conclusions:—

“*Thrombosis of the sinuses of the brain is either a prolongation from the neighbouring veins, or it originates primarily in the sinus.*”

“*A. Thrombosis of the sinuses by prolongation is the consequence—*

“*I. Of processes of inflammation tending to necrosis and sanies in the vascular precincts of the sinus.*”

“*These consist chiefly in caries of the bones of the skull, caries of the petrous bone from internal otitis being most frequent.*”

"II. *Of injuries of the bones of the skull*, inasmuch as the hemorrhage from the diploë which follows them leads to coagulation (hemorrhagic thrombosis).

"III. *Of effusions of blood into the substance of the brain or its membranes*, from which the thrombus extends through the smaller veins into the sinuses (hemorrhagic thrombosis).

"This form of thrombosis is characterized by the situation of the thrombus in the sinus (generally azygous) nearest to the cause; by the more advanced softening of the thrombus; by changes in the walls of the sinus; by inflammation in the brain and its membranes; and by metastatic processes in other organs.

"B. *Thrombosis originating primarily in the sinus* is the consequence—

"I. *Of influences which retard the current of the blood.*

"In the generality of cases, several causes act simultaneously in this direction, partly of a general, partly of a local character.

"1. *General causes retarding the current of the blood are—*

"a. *Deficient energy of the heart's action.*

"a. *In advanced age (marasmus senilis).* Diminished elasticity of the coats of the arteries must here be taken into account as a favouring element.

"β. *In infancy (marasmus infantilis).*

"γ. *In consequence of precedent acute or chronic diseases.*

"b. *Diminution of the quantity of the blood.* Its effect in retarding the circulation manifests itself chiefly in the sinuses of the brain. (It is generally associated with the causes mentioned under a.)

"a. *Direct retardation from losses of blood.*

"β. *Indirect retardation from profuse secretions*, in which cases a certain allowance must be made for the inspissation of the blood (diarrhœa and cholera infantum, profuse suppuration).

"c. *Impediments to the expansion of the lungs, which prevent the right side of the heart from emptying itself properly.* These impediments exist partly in the lungs themselves (pneumonia, atelectasis, tuberculosis), partly in the pleura (pleuritic effusion), or result from deficient action of the respiratory muscles (in rickets, ascites, peritonitis). Alone they do not appear to produce a thrombosis in the sinuses, but they must be regarded as very powerful auxiliaries.

"The thrombosis which results from the causes mentioned under B, I, 1, acting for the most part in combination (thrombosis from marasmus), is characterized by the situation of the thrombus most frequently in one of the azygous sinuses (the superior longitudinal or straight sinus); by its firmness; by the non-existence of disease in the walls of the sinus; by consecutive hemorrhages in the brain and its membranes; and by the absence or very unfrequent occurrence of metastatic processes in other organs.

"2. *Local causes which retard the circulation in the sinuses are—*

"a. *Pressure upon the sinus itself by tumours and enlarged Pacchionian glands.*

"b. *Pressure upon the large veins of the neck by tumours*, in consequence of which coagulation occurs first in them, and, by extension of the thrombus, also in the sinuses.

"(This comes, properly speaking, under A.)

"c. *Intrusion of foreign bodies and tumours into the sinus*, which diminish its calibre; here contact of the blood with the foreign body must be taken into account as favouring coagulation.

"II. *Of diseases of the walls of the sinus*, from altered molecular attraction between the diseased walls and the blood, especially in inflammatory processes in the former (?)

In 1844, the late Professor Schroeder Van der Kolk received from Amsterdam the body of an idiotic girl to be used at his anatomical lectures. He opened the skull with care, and found that the left half of the brain was softened, atrophied, and in a state of morbid degeneration. This pathological condition of the encephalon was accompanied with atrophy of the



right side of the body. As, in the few instances of this condition to be found in the works of modern writers, the examinations made have been too superficial, and the details of the differences between the healthy and morbidly affected parts have not been traced with sufficient accuracy, Prof. Van der Kolk was led to make a very thorough and accurate investigation of the evident influence of the cerebral lesion over the rest of the system.

By the philosophical anatomist, who studies structure always with reference to function, whether normal or perverted, this monograph will be read with deep interest. It is deserving of attentive perusal, not only because it contains the minute details of a very remarkable case of disease, but also because it is accompanied with copious, critical, and erudite references to the investigations of many anatomical, physiological, and pathological writers of eminence. To the zealous student, the value of such references is inestimable.

Four lithographic plates of the thickened skull and atrophied brain accompany this paper.

The next article is from the pen of Professor Radicke, of Bonn, and is entitled: "On the Importance and Value of Arithmetic Means; with especial reference to recent Physiological Researches on the Determination of the Influence of certain Agencies upon the Metamorphosis of Tissue; with rules for accurately estimating the same." This is an important contribution to the logic of medicine.

"At a time so prolific in research of all kinds as the present," writes Dr. Bond, the translator of this monograph, "and when the aid of numerical comparison is so frequently invoked, not only in the domain of physiology and therapeutics, but also in that of practical medicine, it is imperatively requisite that we should know exactly the nature and amount of the assistance which such an aid is capable of affording. If it were necessary to add to the illustrations which Professor Radicke has given in the first of his papers of important generalizations founded upon an utterly insufficient and often inaccurate basis, there would be little difficulty in finding them in the English medical literature of the last few years. The service, therefore, which Professor Radicke has done to the cause of science, in thus calling attention to a growing evil, as well as in pointing out its remedy, can hardly be over-estimated, and his able and exhaustive discussion of the subject will, it is to be hoped, do something, in his own words, 'to stem the stream of baseless and, to a great extent, erroneous doctrines by which medical science threatens to be overwhelmed.' Statistics are a most effective instrument of research when rightly used; but, like other edged tools, in unskilful hands they are as likely to do hurt as good."

Radicke's paper is followed by a short supplement, written by Prof. Carl Vierordt, of Tübingen; and this, again, by "A Reply to Prof. Radicke's paper," published by Dr. F. W. Beneke, of Marburg. The criticisms contained in this "Reply" are noticed by Radicke in another communication "On the Deduction of Physiological and Pharmaco-Dynamical Probabilities from co-ordinated Series of Observations."

In the last of these "selected monographs," Prof. Esmarch, of the University of Kiel, advocates most strongly the employment of cold in various surgical affections, and gives a detailed account of its beneficial effects in cases of compound fractures, gun-shot fracture of the tibia, fracture of the lower part of the humerus, traumatic inflammation of the knee-joint after a perforating wound of the joint, suppuration of the knee-joint, inflammation of the sacro-iliac synchondrosis, chronic purulent inflammation of the

knee-joint, inflammation of the cervical vertebræ, Pott's curvature formed by suppuration of the eighth and ninth dorsal vertebræ, chronic rheumatic inflammation of several dorsal and lumbar vertebræ, hot abscess over the scapula after contusion, inflammation of the bursa patellæ, contusion of the globe of the eye, destruction of the eye by small shot, &c.

In this communication, the reader will find many useful hints as to the best methods of applying cold, the extent to which it should be used, and the indications for its employment.

J. A. M.

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ART. XIX.—*Guy's Hospital Reports*. Edited by SAMUEL WILKS, M. D., and ALFRED POLAND. Third Series, Vol. VIII. London: John Churchill, 1862. 8vo. pp. 325.

THE present volume of this valuable publication contains twenty original communications, nine lithographic plates, and a number of wood-cuts. As has been for some time past our practice, we shall lay before our readers a full analysis of its contents:—

I. *On Disease of the Supra-Renal Capsules; or Morbus Addisonii*. By SAMUEL WILKS, M. D.

About five years since the attention of the profession was called by the publication of Dr. Addison's treatise on the constitutional and local effects of disease of the supra-renal capsules, to a peculiar affection having as its important features a disease of those organs, a discoloration of the skin, and a remarkable progressive feebleness of the patient without any apparent cause. The facts and arguments that have been observed and published since that time, in regard to the existence or non-existence of this affection, the most important of which have been given in the quarterly summaries of the improvements and discoveries in the medical sciences in this journal, have led most physicians to disbelieve the correctness of the views of Dr. Addison. It has unquestionably been shown that supra-renal disease has been found on *post-mortem* examinations where there was no discoloration of the skin, and also that pigmentary discoloration constantly occurs without any morbid affection of these organs. It is known, also, that in the lower animals, when the capsules have been extirpated without great injury to the solar plexus, the animal continues to live as before; and that in men disease of the capsules has been found accidentally, that is, when there was no suspicion of disease, no discoloration of the skin, or marked debility, during life.

In the present paper, Dr. Wilks, who has already shown himself to be a firm believer in the existence of the *morbus Addisonii*, purposes to strengthen the original facts contained in Dr. Addison's treatise, by fresh instances, and also to define more precisely the pathological characters of the disease. With this object he gives the details of twenty-five cases which occurred under his own observation, or in which he examined and preserved the specimens, and examines critically the connection existing between the pathological condition of the capsules, and the presence or absence of certain symptoms.

When he published his work, Dr. Addison believed that any disease that affected the integrity of the supra-renal capsules would be attended by the



remarkable phenomena which he described. This, from more extensive observation, Dr. Wilks is satisfied can no longer be maintained, and he attributes to this mistake, on the part of Dr. Addison, a great deal of the septicism existing in the profession on the subject. According to him, there is only one disease of the capsules that accompanies these phenomena, and of this he gives the following description: First, the organ is somewhat enlarged, and changed into a material that is semi-translucent, of a gray colour, softish, homogeneous, and, when examined microscopically, is found to be without structure, or sometimes slightly fibrillated, or containing a few abortive nuclei or cells. Subsequently, this lardaceous kind of material, which resembles what is often seen in the early stages of serofulous enlargement of the lymphatic glands, undergoes a decay or degeneration, and changes into an opaque, yellowish substance. At a still later period this may soften into a putty-like matter, or it may dry up, leaving the mineral part as a chalky deposit scattered through the organs. For the production of the changes thus detailed some years are necessary.

If it be admitted, for the moment, that the discoloration of the skin, upon which so much stress is laid in the morbus Addisonii, always accompanies this peculiar morbid condition of the capsules, it will be necessary to admit that the affection must have lasted already some considerable time, and that it occasionally in fact proves fatal before the discoloration is effected. The eighth case detailed by Dr. Wilks is one in point. We will give its main features as briefly as possible. Henry M. M—, æt. 38, had for twelve months been failing; his principal complaint being pains in the limbs and general debility. He died about two weeks after admission into Guy's Hospital, with symptoms of utter prostration. On examination of the body, the heart, stomach, liver, spleen, kidneys, and brain were found healthy. Scattered through the lungs was found a number of yellowish deposits, about the size of peas, hard, and somewhat translucent in appearance. The supra-renal capsules were entirely destroyed, and, when cut in two, they presented no appearance of structure. The adventitious material taking the place of their normal elements, was in some parts translucent, and in others, where it had undergone probably further changes, it resembled exactly the uniform yellow material which is so commonly seen in lymphatic glands, and called serofulous. In this case, where, as will be noticed, the disease of the capsules was well marked, and where, moreover, the other organs of the body were healthy, with the exception of some deposits in the lungs, *no discoloration whatever was discovered in any part of the skin*. From such a case as this it must be decided either that the skin becomes discolored after this peculiar disease of the capsules has lasted for some time, or that this peculiar disease of the capsules is not always accompanied by a bronzed skin. We have not come to the same conclusion as Dr. Wilks in the matter, and very probably because our *wills* are not the same; for in such circumstances it is generally true that *voluntas pro ratione stet*. In the case just related, where the patient died with all the organs sufficiently healthy, except the supra-renal capsules, the demonstrator of morbid anatomy, the teacher of pathological anatomy, *will* attribute the fatal termination of the case, the result of extreme debility, to the organ found diseased. We saw many men die last summer, whose skins were as dark as the skin of a mulatto, with symptoms of extreme prostration, and after death not a single organ in the body was found diseased. With the exception of a greater quantity of pigment here and there, perhaps more often deposited in the supra-renal capsules than elsewhere, there was nothing abnormal to be found, as a



general rule, in the bodies of those who died of the so-called *Chickahominy fever*. This was so markedly the case, that Professor Leidy, who made the *post-mortem* examinations we refer to, has declared to us never to have seen so many perfectly healthy organs as in those bodies.

As regards the second great objection, that discoloration of the skin has existed without disease of the supra-renal capsules, this Dr. Wilks frankly admits, adding, however, that he believes cases of the kind to be remarkably few, and that it should be remembered that the pigmentation of the skin always occurs in the rete-mucosum, and *probably may arise from several causes*.

To answer the two remaining objections brought forward to show that the supra-renal capsules are not vital organs, namely, that they can be removed with impunity from the lower animals, and that they have been found diseased in the bodies of men who died from accident or acute disease, in apparent health, Dr. Wilks gives it as his opinion that these organs, when diseased, cause death by implicating the adjacent organic nerves. There is nothing, however, to support this opinion in the details of the *post-mortem* examinations attached to the cases recorded; in all of them whenever the condition of the semi-lunar ganglia is noticed, it is stated that they appeared healthy. We would particularly call attention to this fact, in the history of Case XII. where this report is made of these ganglia, and the patient had had discoloration of the skin for three years, and therefore, according to Dr. Wilks, complete disorganization of the supra-renal capsules for more than that period.

Though the study of this paper of Dr. Wilks must afford gratification and instruction, we doubt whether it will alter the views of any member of the profession who does not already believe in the existence of the morbus Addisonii.

## II. *Case of Tumour at the Base of the Brain; with Ophthalmic and Post-mortem Examination of the Eyes.* By C. BADER.

This case is one where a man died with most decided symptoms of cerebral mischief, amongst which was impairment of sight, that was shown by the ophthalmoscope, before death, to be accompanied by an enlarged and tortuous state of the veins of both retinae. Notwithstanding the very considerable venous congestion of the retina, both it and the optic nerve were apparently unchanged in structure, and, according to the ophthalmoscopic appearances, the amaurosis was to be attributed to something else than temporary paralysis from pressure within the eye. An undue accumulation of blood at the base of the brain, from some cause or other, was supposed to be the cause of this condition of things.

At the *post-mortem* examination, an oval tumour, of a fibrous nature, about the size of a small hen's egg, was found at the base of the brain on the inner and lower surface of the right lobe of the cerebellum. The pons varolii was much compressed, and likewise the upper part of the medulla oblongata.

The whole account of the ophthalmoscopic examination, with the reflections of Dr. Bader, are exceedingly interesting:—

\* The media (the transparent parts in front of the retina) transparent; retina, choroid, and sclera normal, except the bloodvessels (veins) of the retina, which were numerous, gorged with blood, and tortuous (elongated). The optic nerve (at the choro-retinal aperture) of the left eye appeared almost as red as the adjoining choroid, especially its temporal portion (inverted image), thus appearing ill-defined, *i. e.*, the adjoining choroidal aperture not well marked off. There

was no change in the retinal arteries where they pass through the nerve; the veins were as numerous and gorged, &c., as in the retina.

"In the right eye a similar state of the veins existed in a still higher degree. The situation of the optic nerve (of the choro-retinal aperture) could only be recognized by the vessels of the retina converging towards and passing through it; the contours of the aperture were observed by the great vascularity of the nerve thus blending in colour with the choroid, and probably changing the reflection from the retina.

"A similar state of bloodvessels in the retina and optic nerve I have noticed—

"(1) In chronic forms of sub-retinal dropsy (these were excluded by the transparent state of the retina and the healthy appearance of the choroid).

"(2) In retinitis apoplectica (there were no apoplexies in this case, though they might have appeared finally if the impairment in the circulation had continued).

"The state was not due to any intra-ocular pressure (at the scleral or at the choro-retinal aperture), because the veins were equally (proportionately) enlarged in the optic nerve and in the retina, and there was no anæmia of the optic nerve. It might have been ascribed to structural changes of the nerve itself, but the latter, in those cases, is generally found pearly white or anæmic. The other cerebral symptoms, together with the enlarged, tortuous state of the veins of both the retinae, made it probable that an undue accumulation of blood at the base of the brain was the cause of the state of the bloodvessels (veins) of the retina. The impairment of sight could not, according to the ophthalmoscopic appearances, be attributed to a temporary paralysis of the nerve from pressure, by the over-filled bloodvessels within the eye. It appears, from the healthy state of the retina and optic nerve (microscopically), that the changes at the base of the brain were the cause of blindness. Ophthalmoscopically, it was interesting to find the retina and optic nerve apparently unchanged in structure with such considerable venous congestion of the retina.

"The indistinctness of the optic nerve at the choro-retinal aperture I attribute to the change of refractions of the retina at this part. We may consider the congestion of the retina, the interior of the eye and its functions being otherwise normal, a valuable means of recognizing impairments of the circulation at the base of the brain. It would be interesting, in cases of brain disease, whether vision be impaired or not, to examine the retina for its vascularity, with a view of watching cerebral changes and establishing the value of this diagnostic aid."

After death, one of the eyes having been in a weak solution of chromic acid for a few days, was examined microscopically. The choroid and retina were healthy; the elements of the latter were well seen, and their relative position not in the slightest degree disturbed; there were no signs of pressure at the retinal aperture; the optic nerve appeared equally healthy; the connective tissue, the individual nerve-fibres, and the bundles of nerve-fibres, the piles of nuclei between the fibres, the relative position of these elements to the retina, &c., was undisturbed.

III. and IV. *Remarks on the Stereoscopic Theory of Vision, with Observations on the Experiments of Professor Wheatstone.* Section I. *The Stereoscope and Stereoscopic Results.* Section II. By JOSEPH TYRONE.

The experiments related in these papers are of great importance. If they are indeed as conclusive as they appear to us to be, we do not understand how it is possible to reconcile the results obtained with the stereoscopic theory of vision.

The following observations upon the stereoscopes in ordinary use, and the description of the one recommended will be found very interesting.

"Pictures, when seen in the stereoscope, are referred principally to the inner



tracts of the two retinae, while in ordinary vision these tracts cannot act in concert, the impressions upon the inner side of the right eye, and upon the inner side of the left eye being distinct, and their images referred in opposite directions. It would be premature to conclude that this, of necessity, involves a fallacy; but it must, I think, be considered as a fact of some significance. Neither can the form of the stereoscopic lenses be disregarded. It is to be observed that these lenses are so constructed as to combine the properties of the convex lens with those of the prism, the result of this arrangement being, that the two pictures when viewed in the stereoscope, are displaced, that seen by the right eye a little to the left, and that seen by the left eye a little to the right. So far, therefore, as the superposition of the two stereoscopic pictures is assisted by this means, the result is optical, not ocular, and must be referred to the instrument, not to the eyes. These observations apply to the lenticular stereoscope of Sir David Brewster, which, admirable though it be for popular use, for scientific purposes is inferior to the original reflecting stereoscope of Mr. Wheatstone. Still I must confess that very early in these inquiries I became conscious of a necessity, for some method of investigation less artificial in character, and less restricted in its operations than any yet introduced. These advantages have been secured by means of an instrument I have constructed for the purpose, which since it is essential to some of the experiments hereafter to be introduced, and also affords increased facilities for similar observations, I will at once describe, under the name of the adjustive stereoscope. This instrument consists of a board, which forms the bottom, having sides and ends; in length it is 16 inches, in width 7 inches; the sides are 1 inch deep, and the ends 5 inches deep, the one to admit of space for the eye-holes, the other is fitted with grooves to receive the slides; the end for the eye-holes is fixed, that for the slides must allow of being moved backwards or forwards, for the regulation of distance. The distance between the centres of the eye-holes is  $2\frac{1}{2}$  inches; these openings, instead of containing lenses, are covered with two thin, brass plates, there being in each plate a small perforation like a pinhole; these two apertures must be brought exactly opposite the two pupils, and since the distance between the pupils varies in different individuals the eye-plates are made to slide in grooves, so that they can be readily adjusted to the eyes of different persons. The plates are on the outer side of the openings, that is, they are placed *before* the openings. (Plate.)

The eyes should be brought close to the apertures, and a thumb placed on either plate, when, by slight lateral motion, the apertures may be readily adjusted to the pupils, and they are so, when the right image is seen exclusively with the right eye alone, and the left image is seen exclusively with the left eye alone; these conditions being secured, if both eyes be opened, the images will be superposed. The inside of the instrument is to be painted black, and there are several points connected with its use which require particular attention, and on their due observance the integrity of its operations depends; first, and principally, upon the exact adjustment of the eye-plates, and second to this, but scarcely less, upon the arrangement of the light. I shall, therefore, add a few words upon these two points. The plates should be of thin brass, their dimensions three and a half inches by one and a half inch; it is essential that the apertures should be clear at their edges and free from shine or glitter, and the grooves in which they slide must be perfectly true, so that when the apertures are brought before the two pupils, they may appear as one opening. Care should be taken to secure a sufficient and equal light upon the objects, while the eyes are kept in shadow; under a lamp this may be easily managed, by having the side of the lamp next the observer covered, while the light falls upon the objects, and by daylight the same advantage can be secured by turning the back to the window, so that the eyes are in shadow while the objects are well illuminated."

This paper is abundantly illustrated with wood-cuts, some of them coloured, and a plate is attached representing an outline drawing of the adjustive stereoscope just described.



V. *Clinical Notes on some Cases of Disease of the Heart.* By S. O. HABERSHON, M. D.

This paper contains the detailed histories of eight cases of cardiac disease, with general remarks attached to each one. It is particularly worthy of attention on account of the judicious treatment recommended in chronic cardiac disease. By care as to diet and the state of the bowels, so as to avoid flatulence and hepatic congestion, by attention to the atmospheric condition so as to guard against recurrent attacks of bronchitis, and by regulating the muscular exercise of the patient, more can be done to retard the increase and the speedy termination of such disease than by any administration of medicines.

This paper is illustrated by a plate representing an aneurism of the aorta that opened into the pulmonary artery.

VI. *Notes of Several Cases in which Podophyllin was used as a Purgative.* By S. O. HABERSHON, M. D.

The cases here related are twelve in number, and of various diseases. In none of them is there anything remarkable in regard to the peculiar action of podophyllin; but we may notice a typographical error in the paper—the United States Dispensatory is referred to as the work of “Wood and Barker.”

VII. *Two Cases of Extra-uterine Fœtation, treated by Abdominal Section.* By J. BRAXTON F. HICKS, M. D. F. R. S.

There are several points in connection with cases of extra-uterine pregnancy upon which the profession is still seeking information.

We know that the life of the child is not to be considered, for in every instance where an attempt has been made to extract the child while living, the mother has been destroyed. We know again, that when the operation is performed, the placenta should not be interfered with if at all adherent; but the propriety of performing an operation, and the most advantageous period for performing it are still in question.

There are so many cases on record where the fœtus has remained innocuous for an indefinite period, in some for more than fifty years, and the instances are so numerous where the fœtus has been got rid of by ulceration into the vagina, bladder, and intestines, as well as by abscess opening externally either at the umbilicus or some other part of the abdominal walls, that the surgeon must hesitate before he consents to perform an operation attended with so much danger as that of gastrotomy. As to the proper time of performing the operation, that must be decided mainly by the probabilities of adhesions having been formed between the cyst and the walls of the abdomen. In fact, we feel inclined to believe that the operation should never be undertaken until the surgeon, if not confident of the existence of such adhesions, has made an effort to establish them, as we have several times seen effected in cases of hydatid cysts of the liver, by the application of Vienna paste.<sup>1</sup>

In one of the two cases related by Dr. Hicks, as well as we can judge, for the last menstrual period is not stated, the full term had expired about eight months at the time of operation; in this case the cyst which communicated with the intestine was not adherent, and the patient died in twelve hours after the operation. In the second case, the full term had

<sup>1</sup> See Nelaton's Clinical Lectures on Surgery, Phila. 1855, page 531, &c.

expired about four years; the cyst, which communicated with the bladder, was completely adherent, and the patient recovered.

From the general remarks made by Dr. Hicks upon these cases, we think it well to make the following extract, though we prefer to the proceeding advocated by him, the plan we have referred to above:—

“It seems therefore, to me, that in all cases where there is no adhesion, or only a partial one, between the cyst and the parietes, it would be the safest, indeed imperative, to sew the free lips of the wound in the cyst to the corresponding side of the abdominal walls, before any attempt is made at the extraction of the fœtus. To prevent the escape of the fluid contents, during this performance, into the peritoneal cavity, will, of course, require care, but it might be accomplished by seizing the cyst with a vulcellum, while the opening into it is made quickly of the desired length. Then momentarily upon the formation of this, the finger of the operator upon one side, and of an assistant on the other, could enter the wound, and hold the edges in contact with those of the external opening. This point being secured, a sufficient number of sutures could then be made use of to secure perfect apposition throughout the length of the wound. Should air be in the cyst, as in these two cases, the above might be accomplished with much more ease. Care of course should be taken not to include any intestine or omentum. After the peritoneum is thus shut off, the fœtus should be extracted as carefully as possible, in whatever manner is easiest, according to its relation to the opening.”

VIII. *Notes on Two Cases of Uterine Polypi.* By J. BRAXTON HICKS, M. D. F. R. S.

The first of the two cases related in this paper is chiefly interesting in a pathological point of view. A globular polypus, removed from the os uteri, was found, when microscopically examined, to contain, in a certain portion of its tissue, caudate cells, inclosing two or three nuclei, differing much in size. It was, therefore, according to Dr. Hicks, to be looked upon as bearing a close affinity to the more marked forms of malignant disease. At the expiration of eighteen months, the patient applied to Dr. Hicks again on account of a tumour, attached to the uterus, and extending nearly to the umbilicus. She soon afterwards died suddenly, from, as it afterwards appeared, fatty heart. On examining the growth, it was found to be much softer in the upper portion than in the lower, and to be formed there of large nucleated fibre-cells, together with cells similar to those described as occurring in the polypus first removed.

The second case is interesting chiefly in a practical point of view, as an instance of the ease and rapidity with which the removal of an intra-uterine polypus may be effected by means of the annealed steel wire-rope ceraseur.

IX. *On Stricture, Retention of Urine, Stone in the Bladder, and other Diseases of the Urinary Organs.* By THOMAS BRYANT.

This is the fourth of the series of articles, being published by Mr. Bryant in the *Reports*, which are intended to illustrate, from cases that have occurred in Guy's Hospital, the surgery of the different regions of the body. In preceding articles, the surgery of the nervous, the respiratory, the circulatory, and the digestive organs have been freely illustrated from the very extensive clinical data there furnished.

The source from which the material for the present paper, on the surgery of the genito-urinary organs, is drawn, is thus tabulated:—

Simple organic stricture . . . . .	336	9	345
“ “ with retention' . . . . .	106	3	109
“ “ with extravasation of urine . . . . .	30	15	45
“ “ with urinary fistulæ . . . . .	46	1	47
Traumatic stricture and its complications . . . . .	34	1	35
Cases of “external division” and “perineal section” . . . . .	36	7	43
Cases of puncture of bladder per rectum . . . . .	20	3	23
Retention of urine . . . . .	76	4	80
Ruptured urethra . . . . .	19	—	19
Urethral calculus . . . . .	12	2	14
Irritable bladder . . . . .	134	2	136
Incontinence of urine . . . . .	22	—	22
Hæmaturia . . . . .	19	—	19
Inflammation of the prostate . . . . .	6	—	6
Calculus vesicæ . . . . .	112	22	134
Total	1008	69	1077

These cases, it may be interesting to know, were admitted into Guy's Hospital, from October 1st, 1853, to March 31st, 1861, or in a period of seven and a half years.

Spasmodic stricture is treated of by Mr. Bryant in the chapter on retention of urine, and he begins his paper by the consideration of organic or permanent stricture, under which head he includes both those strictures resulting from chronic inflammation in the urethra, styled simple organic stricture and those usually called traumatic, that is, following a partial or complete rupture of the canal from external or internal violence.

As respects the *locality* of simple organic stricture, he agrees entirely with the views of Mr. Thompson, with the results of whose investigations the readers of this journal are familiar.

In inquiring into the *causes* of stricture, out of the 646 cases, it is found that gonorrhœal inflammation had existed in 273 instances, or 42 per centum; and direct injury was the assigned cause in 43, or 6.6 per centum; leaving 330, or more than one-half, in which no definite cause could be discovered. Out of the 273 cases in which a gonorrhœa had previously existed, in 78, or 28 per centum, injections had been employed.

Of the 603 cases of simple organic stricture, 565 were treated by simple dilatation of the urethra, and 38 by some operation opening the urethra in the perineum. Of the 43 cases of traumatic stricture, 37 were treated by dilatation, and 6 by opening the urethra into the perineum. It is thus seen in that both simple and traumatic organic stricture, dilatation is the treatment most generally employed in Guy's Hospital, and that the knife is only resorted to in exceptional cases.

The internal division of the stricture receives but little support at Guy's Hospital. It was only performed in five of these cases, and in all of these the stricture existed either at, or within an inch of, the urethral orifice. The plan of treatment by means of caustics, has met with even less support than the one just mentioned.

“External division,” the operation so much lauded by Professor Syme, was had recourse to in 7 cases of uncomplicated organic stricture, where dilatation failed from the too great irritability or too obstinate contractility of the stricture.

In those very rare cases where all local and constitutional treatment fails in affording relief, and the stricture is impermeable, Mr. Bryant believes



"perineal section" to be the best operation to resort to. For performing this difficult operation, the plan originally planned and executed by Mr. Cock is recommended. For its performance the following directions are given :—

"Having placed the patient in the position for lithotomy, pass the finger of the left hand into the rectum, and apply its point to the anterior margin of the prostate and membranous portion of the urethra—a part which it is not difficult to detect even in the most diseased urethras. A straight knife, with the edge turned upwards, should then be passed through the centre of the perineum, directly backwards to the apex of the urethral triangle or anterior margin of the prostate: this point being readily detected by the finger already resting in the rectum; an incision of the whole thickness of the parts should then be made upwards, the canal being freely opened and the stricture divided. By this means the urethra cannot fail to be freely opened, and it only requires care on the part of the surgeon to divide the whole stricture throughout its full extent. With a grooved probe the vesical orifice of the urethra may then be found, and a catheter, having been passed down the penis through the divided stricture, should then be introduced into the bladder, and left in."

Fifty-five of the cases of simple organic stricture, and three of those of traumatic stricture, were complicated with *extravasation of urine*. In such cases, giving rise to urinary abscess, many surgeons are satisfied with merely opening the abscess in the perineum, leaving the stricture to be subsequently treated by dilatation or by other means. The soundest and most correct practice, according to Mr. Bryant, is to divide the stricture, at the same time that the abscess is opened. In some severe cases of extravasation, where the urine is extensively infiltrated, he directs free incisions to be made into the infiltrated parts, and the "perineal section" to be performed without delay, in order to divide the stricture and to remove the obstruction to the flow of urine.

Sixty-five of the cases of simple organic stricture were complicated with urinary fistula. In forty-seven a cure was obtained by dilatation; in the remaining eighteen either the operation of perineal section or of external division was found necessary.

The treatment recommended by Mr. Bryant in cases where the stricture is traumatic is the same as that where it is organic. Of course the permanent effect of dilatation is not nearly so great; out of the forty-three cases tabulated, in six the operation of perineal section or of external division was absolutely required.

The following is the analysis of the cases of perineal section and external division :—

Cases of external division :—

Seven cases for irritable and contractile strictures; one of which died from renal disease and uræmic poisoning.

Five cases for stricture and extravasation; all recovered.

Four cases for stricture and perineal fistula; all did well.

Three cases of external division for traumatic stricture or its complications; all recovered.

Cases of perineal section :—

Five cases for stricture and extravasation; of which one died.

Fourteen cases for stricture and perineal fistula; two died.

Three cases for traumatic stricture and complications; two died.

Two cases for obstructed or impermeable urethra; one died.

The chapter on *retention of urine* contains some remarks upon retention as a result of elongated and adherent prepuce that will be novel to most

surgeons. Mr. Bryant says that he could quote cases in which an adherent prepuce had been the cause of retention and of incontinence of urine, and had produced every symptom of a vesical calculus, even hæmaturia. In his belief, in at least two-thirds of the cases of children suffering from urinary irritation, the sole cause is an adherent and elongated prepuce; and the only remedy is circumcision and the careful separation of the prepuce from the glans penis, with the removal of the confined secretion of Tyson's glands. Though inclined for many good reasons to favour, in every legitimate way, the practice of the excellent institution of circumcision, we cannot but believe the true cause in such cases to be rather a *narrow orifice* in the prepuce than the elongation and adhesion to the glans.

As a final conclusion to this chapter, Mr. Bryant declares "that in all cases of retention of urine from stricture, in which relief cannot be given by means of rational and not forcible catheterism, and in which the use of the warm bath and opium have fairly failed, the operation of puncturing the bladder through the rectum is to be performed." To the use of the warm bath and opium, that of chloroform and ether should be added; Mr. Bryant has evidently forgotten to mention them.

The *causes of death* in the thirty-six cases of stricture in which a fatal result took place, were as follows: In twenty-six a post-mortem examination was made, and in all diseased kidneys were discovered; not such disease as requires microscopical research for its detection, but positive destructive and suppurative disease of the organs; and of the remaining ten, two died with evident symptoms of uræmic poisoning, and in the other eight that most marked exhaustion which appears so characteristic of renal disease was present. The duration of the stricture has necessarily a serious influence in producing a fatal result; the longer the obstruction exists, the greater the probability, if not certainty, of the production of renal disease. In these thirty-six fatal cases the average duration of the stricture was seventeen years.

In the nineteen cases of *ruptured urethra*, in the majority of instances the injury was caused by some direct violence to the perineum, but in some the injury was produced by the passage of a cart-wheel across the pelvis. It is somewhat difficult to understand how such a result can be thus produced without a fracture of the pubic portion of the pelvis; but it is nevertheless true that such cases are occasionally met with. The practice recommended by Mr. Bryant is eminently judicious.

"If called, therefore, to a patient who has evidently been the subject of an injury to the urethra, suffering from simple retention, the first object of the surgeon should be to attempt to pass a catheter; if the urethra is not completely torn away, and there is not much blood locally effused, there will be a strong probability that he will succeed, and having done so, the instrument should be left and fastened in; a gum-elastic instrument, therefore, with a strong stilette, should be employed. If the attempt at catheterism, although having been fairly made, should fail, some other means must be employed, for it is clear that an outlet for the urine must be obtained, or otherwise extravasation, with its danger, will necessarily follow.

"An incision into the perineum with a grooved staff is unquestionably the soundest practice; by it the extravasated blood, and urine if it exists, finds a ready outlet, and the bladder when it contracts will find a vent for its contents, without the dangers occasioned by an extravasation of urine.

"If the orifice of the vesical end of the ruptured urethra can be found with a grooved probe, a catheter should be passed, the instrument having been first introduced through the penis, and subsequently guided upon the grooved probe into the bladder; if difficulty is experienced in finding the orifice, there need be

no alarm, as it is quite clear that the urine will readily find its way externally through the artificial wound; an early attempt to pass a catheter should, nevertheless, certainly be made, for it is most important that the continuity of the urethra should be restored as early as possible.

"When a catheter has been introduced, it must be left in; for it is equally important that the patency of the canal should be maintained during the whole period of its repair, and its subsequent contraction in a measure neutralized. The frequent passage of an instrument after the repair has taken place, is an important point to be observed; this practice being the best guarantee that a traumatic stricture will not be the result, and if it be, its risks will be materially lessened."

Of the fourteen cases of *impacted urethral calculus*, only three were in adults, and the remaining eleven were in children. In the adults the stone was immediately behind the glans penis, and was readily removed through the urethra. In only one case, in the children, had the stone passed as far as the penis; in all the others it had remained fixed in the perineum, and in five of the cases extravasation of urine had already occurred. The practical point for recollection is this: that in children extravasation of urine is almost certainly the result of an impacted calculus, and that an early perineal incision is the only sound treatment.

The chapters treating of *irritable and inflamed bladder* in children and in adults, *incontinence of urine*, *hæmaturia*, and *inflammation and abscess of the prostate*, contain valuable practical observations, but nothing calling here for special remark.

The last chapter in Mr. Bryant's interesting paper is on *stone in the bladder*. The whole number of cases recorded in the table is 134. Of these—

"In two cases the calculus was passed per urethra.

In seventeen cases lithotripsy was performed, and one died.

In ninety-six cases lateral lithotomy was performed, fourteen proving fatal.

In two cases lithotomy was called for after lithotripsy had failed, one case dying.

In five cases median lithotomy was executed, and in these cases death followed, the operation having been solely undertaken to afford relief.

In two cases median lithotomy was performed for prostatic calculi.

In one case the recto-vesical operation was successfully performed for a very large calculus.

In nine cases no operation was deemed justifiable, on account of the presence of some organic disease, three dying of renal disease while in the hospital."

The following are the conclusions drawn from these cases, concerning the treatment of stone in the bladder:—

"1. That in all cases of stone in the bladder, if the kidneys are sound, the operations of lithotomy or lithotripsy are likely to prove successful.

"2. That if the kidneys are diseased, however skilfully may either operation be executed, a fatal result will probably ensue.

"3. That renal disease, if not capable of detection by the examination of the urine, can tolerably accurately be diagnosed by the history of the duration of the symptoms; the longer their existence the greater the probability of its presence, and *vice versa*.

"4. That in children the operation of lithotomy is almost uniformly successful, about one case in twenty proving fatal, renal disease being very rare; and that it is to be preferred to the operation of lithotripsy.

"5. That in adults free from organic disease, lithotripsy is a most valuable operation, and is to be preferred to lithotomy, unless, from the size and nature of the calculus, or from any peculiarity in the patient, there are strong reasons for its rejection.

"6. That lithotomy in adults between puberty and forty years of age, is fatal



in one case out of seven; and after that age in one case out of one and three-quarters; renal disease being more frequent at these periods of life, and proving the general cause of death after the operation.

"7. That in patients probably and palpably the subjects of vesical, renal, or other organic disease, it is a question for future experience to decide which is the best operation to be performed for the relief of their suffering; that lithotomy recommends itself for our adoption as being the best measure for the relief of the patient in the majority of cases; although evidence apparently tends to show that, if the calculus be small, it may be successfully removed by means of the lithotrite.

"8. That there is an intermediate class of cases between the absolutely sound and the probably or positively diseased, in which no operation is really needed; including those in which there is evidence of organic disease, but in which the calculus causes little pain or constitutional disturbance; and in which, therefore, it is the soundest practice to apply our skill simply to give relief."

This paper of Mr. Bryant on the surgery of the genito-urinary system is drawn up with more care than the two preceding it in his series, but it nevertheless bears too many marks of want of time, or of carelessness. A whole chapter, the seventeenth, is not accounted for, and the grammar is not always correct. The very first sentence reads: "In previous pages, the surgery of the Nervous, Respiratory, Circulatory, and Digestive Systems have received our attention:" and we are directed on page 172 not to have recourse to a certain operation until "all other local and constitutional treatment have been tried and found to fail."

X. *Case of Progressive Atrophy of the Muscles of the Hands: Enlargement of the Ventricle of the Cord in the Cervical Region, with Atrophy of the Gray Matter: (Hydromyelus).* By WILLIAM GULL, M. D.

The interest of this case, pathologically, rests in the fact that, from the sudden death of the patient from typhus fever, an opportunity was afforded of discovering the "progressive muscular atrophy" to have had a central cause. There was chronic cervical *hydromyelus* comparable to a chronic *hydrocephalus*. The distension of the ventricle of the cord, by an accumulation of fluid, caused atrophy of the gray matter to such an extent, that in certain parts of the cervical region no other remains were found but the anterior cornua.

The history of the case must also suggest some doubts as to the truth of the present theories of the function of the gray matter of the cord. A very large part was here slowly removed without affecting sensation to any corresponding extent, and without disturbing the general functions of the cord, or the influence of the brain on the parts below.

This paper is illustrated by a wood cut and a lithographic plate.

XI. *A Case of Arrest of Development of the Humerus.* By JOHN BIRKETT.

In this case, the right humerus was only seven inches in length, while the left measured thirteen. The diameter of both bones, as well as could be determined by external examination, was the same. The movements of the shorter arm, and its muscular development, were as perfect as those of the other. About two inches below the acromion was a small cicatrix, where during infancy (the patient was then 25 years of age) an abscess had opened, and continued discharging for some time, without, however, at any time allowing any bony matter to escape.

This disease of childhood, situated at the junction of the epiphysis with the shaft, where, according to the experiments of Hales, Duhamel, Hunter,

and others, the shafts of the long bones increase in length by bony deposit at their ends, may be safely alleged as the cause of the deformity.

A lithographic plate is attached to this paper, exhibiting the arrest of development just described.

*XII. Case illustrating the Arrest of Development of the right Humerus, after an Injury received in Infancy.* By THOMAS BRYANT.

In this case the right humerus was five inches shorter than the left, while in other respects its development was quite natural. The patient, who was 30 years of age, had, when only a few months old, received an injury to the right shoulder from a fall; which injury was not followed by any suppuration, but by an arrest of the growth of the limb. This injury must have been sufficient to prevent the subsequent growth and development of the cartilaginous layer, placed between the shaft of the long bones and their epiphyses, from the growth and ossification of which the elongation of the long bones is effected.

The arrest of development in this case of Mr. Bryant is likewise exhibited in a lithographic plate.

*XIII. Description of a remarkable Enlargement of the Nerves.* By WALTER MOXON, M. D.

The nerves, in this case, were those of a subject already partially dissected when the peculiarity was remarked; the body of a female who died in the hospital of some chest affection. None but negative information could be obtained regarding the phenomena of her nervous system during life, which may be regretted, inasmuch as it is supposed, by some, that the amount of *will* the nerves can conduct varies with their magnitude. The nerves of this subject were uniformly increased in size throughout their entire extent, so as to be nearly three times larger than usual. The average diameter of the nerve-tubules was  $\frac{1}{900}$ th to  $\frac{1}{500}$ th inch, in place of  $\frac{1}{2000}$ th or  $\frac{1}{1500}$ th.

This remarkable enlargement of the nerves is illustrated by a plate containing five figures.

*XIV. Description of some new Wax-Models lately added to the Museum.* By THE CURATOR.

The models here described are those of a *disease of the skin produced by post-mortem examinations, or verruca necrogenica; arsenical eruption on the face; glanders; melanotic tumours of the leg; and pathological models of the heart, and of the other viscera in cardiac diseases.*

The disease of the skin of the hands, which is produced by the constant irritation from the acidity of the morbid fluids of the dead body, is one we have never met with or seen described before. A warty thickening of the epithelium is said to take place, in these persons, on the knuckles and the first joints of the fingers. This, in the course of time, becomes of a dark colour, and fissured, until a kind of ichthyotic condition is produced.

*XV. Some Points in the Toxicology of Copper.* By WILLIAM ODLING, M. B., F. R. S.

This paper contains much that is valuable to those who may be called upon to examine organic tissues for the presence of copper.

*XVI. On the Nomenclature of Organic Compounds.* By WILLIAM ODLING, M. B., F. R. S.

In this paper a new plan of nomenclature in organic chemistry is advo-

cated, on account of the striking inconveniences and incongruities of the one now in general use.

XVII. *Case of Deformity of the Mouth, after Sloughing of the Cheek from Fever; Operation and Recovery.* By THOMAS BRYANT.

For the comprehension of the deformity that existed in this case, the nature of the operations which were performed, and the very gratifying result that was obtained, it is necessary to consult the plates, three in number, by which the paper is illustrated. It is one of the most satisfactory cases of the kind to be met with on record.

XVIII. *Almond Food as a Substitute for Bread in Diabetes.* By F. W. PAVY, M. D.

In the treatment of diabetes, almost all physicians, whatever views they may hold respecting the pathology of the disease, agree in recommending abstinence from starchy and saccharine articles of food. An exclusive diet of animal food is, however, so fatiguing to the patient, that it is a matter of importance to discover a vegetable product, containing neither sugar nor starch, that may be used as a substitute for bread. In searching for such a substitute, medical men have confined themselves to separating the starch from the gluten and lignin of the seeds of the *cereal*ia. Mr. Pavy has turned his attention to the seeds where, in place of starch, oil is found, and after passing in review many vegetable products, has fixed upon the sweet almond as the most promising. These, when thoroughly ground, he finds to be readily digested, and the oleaginous element is desirable as an article of consumption in diabetic patients, who are unable to use the other, the saccharine, form of the calorific element of food.

Three cases are reported, showing the effect of the almond food, conjoined with an animal diet, in diminishing the elimination of sugar.

XIX. *On the Water of Guy's Hospital Well.* By AUGUST DUPRE, PH. D., F. C. S.

This paper contains nothing of special interest to our readers.

XX. *Spontaneous Aneurism of the Brachial Artery cured by Compression.* By JOHN BIRKETT.

The patient, in this case, was a medical man, only 29 years of age, who could not remember to have ever received any blow, strain, or injury of any kind, on the arm. The compression was continued for more than four months.

W. F. A.



## BIBLIOGRAPHICAL NOTICES.

ART. XX.—*Transactions of State Medical Societies* :—

1. *Medical Communications of the Massachusetts Medical Society, at its Annual Meeting*, held May, 1862. 8vo. pp. 216, second series, Vol. VI., Part II. Boston, 1862.
2. *Medical Communications with the Proceedings of the Seventh Annual Convention of the Connecticut Medical Society*, held at Bridgeport, May 28 and 29, 1862. New series, Vol. I., No. 3. New Haven, 1862.

THE initial paper in the present volume of communications made to the Massachusetts Medical Society—on the topographical distribution and local origin of consumption in Massachusetts—is from Dr. HENRY I. BOWDITCH, of Boston. It is, confessedly, one of a deeply interesting character, and well deserving of a careful examination by every member of the profession. The truth of the two propositions laid down by the author, so far as the facts collected and arranged by him in the paper before us go, would seem to be established as to Massachusetts and the New England States generally. Should they be found to hold good in respect also to the other habitable portions of the globe, the communication of Dr. Bowditch cannot but be viewed as one of the most important of the recent contributions to pathology.

The propositions discussed by Dr. Bowditch are as follows :—

“*First.* A residence on or near a damp soil, whether that dampness be inherent in the soil itself, or caused by percolation from adjacent ponds, rivers, meadows, marshes, or springy soils, is one of the primal causes of consumption.”

“*Second.* Consumption can be checked in its career, and possibly, nay probably, prevented in some instances, by attention to this law.”

The evident increase in the prevalence of consumption throughout the greater portion of the United States, and the almost invariable destruction of life by which it is attended, renders everything which relates to the causes by which it is produced of the highest importance, inasmuch as a knowledge of its primary causes constitutes the only sure basis upon which a rational and certain prophylaxis of the disease is to be founded.

The etiology of pulmonary phthisis has heretofore proved a stumbling block in the way of every pathologist who has undertaken the investigation of the disease. Much of this, it appears to us, has arisen, in part, from imperfect observation in respect to the circumstances under which the disease has been found to prevail, and to the greatest extent; in part, also, from not properly distinguishing between the tubercular dyscrasy, and the diseases which occur in those individuals in whom such dyscrasy is present; the causes to which the one or the other owes its origin, and the phenomena and results proper to them respectively.

By whatever causes engendered, it is very evident that tuberculosis is a vice of nutrition. Cells, it is true, are regularly formed from the blood, but of such a character as to unfit them from undergoing the metamorphosis required to assimilate them with the tissues, for the building up or renewal of which they were destined. They remain, therefore, in the tissues as albuminoid deposits. These accumulate, more or less slowly, interfering by their presence and bulk with the functions of the organ in which they are present, and, undergoing a slow process of softening, bring about, finally, its entire destruction.

The course of tuberculosis is materially modified, when, from any cause, inflammation is excited in the organs which are its seat. Thus, in cases of simple tuberculosis of the lungs, we have a form of consumption, insidious in its approach, and progressing slowly towards a fatal termination—a true *phthisis*

*pulmonalis*—a gradual wasting, a melting away, as it were, of the lungs and of the entire body; where death would seem to linger, as though loth to desert the emaciated frame. When, however, inflammation is set up in the tuberculized lung, we have then our more common form of consumption; which is often, apparently, sudden in its development, and always more or less rapid in its fatal course, sometimes so much so as to obtain for it the popular denomination of *galloping consumption*.

Extended series of statistics bearing upon the subject of the climatology of consumption, collected under circumstances well adapted to insure their entire accuracy, would appear to prove that the climate the least favourable to the production of tuberculosis, and especially of the lungs, is one that is dry, equable, and of a low rather than a high temperature.

We collected, some few years since, a very large number of statistics to illustrate the particular circumstances under which consumption was found most extensively to prevail, and the class of persons who constitute the majority of its victims. From a careful collation of these, we arrived at the conclusion that an indoor, sedentary, luxurious, and artificial life was the one by which most frequently consumption was engendered; while, on the other hand, an active life, spent chiefly in the open air, in healthy situations, followed by an adequate amount of sleep at night, in dry, clean, and well ventilated chambers, with a sufficient supply of appropriate nourishment and clothing, constituted the conditions which would most certainly guarantee against its occurrence.

The fact which has been lately established, that a very large number, if not the majority of the sailors belonging to the national marine of Great Britain, who die of disease, perish from tubercular consumption, would appear, at first sight, to invalidate the correctness of the above conclusion, but we believe it will be found to do so only in appearance when all the circumstances under which sailors, even those on board government vessels, are placed, are closely investigated. But, let this be as it may, it is unquestionably true—basing our conclusion upon the whole of the facts in our possession—that they who inhabit a dry, cool, equable climate, lead an active outdoor life, with sufficient intervals of rest, and are, at the same time, amply supplied with proper food and raiment, are those in whom consumption has been found to be, to say the least, a very rare disease.

In the communication which has suggested these remarks, Dr. Bowditch has adduced a chain of evidence which he believes will fully establish the fact that *soil moisture* constitutes one of the prime causes of consumption, at least in the New England States, and perhaps, also, in all other places where the disease prevails.

The axioms which Dr. B. lays down are these:—

“1st. Consumption is not, as some writers have contended, endemic equally in every part of New England; but there are some localities where it is very rife, and others where it is vastly less destructive than in the State at large.

“2d. There is a law, hitherto scarcely noticed, or but vaguely hinted at by one or two individual writers, but, as I believe, never proved until now, which is one of the main causes, if not the sole cause, of this unequal topographical distribution of consumption in New England.

“3d. This law is intimately connected with, and apparently dependent on, *the humidity of the soils*, on or near which stand the towns, villages, or even single houses, where consumption prevails.”

The existence of this *law of soil moisture*, as one of the prime causes of consumption in New England, can be proved, Dr. B. thinks, by several lines of argument, resting on actual facts obtained either from public or private records, statistical data, or the opinions of physicians practising medicine in various parts of New England. These lines of proof, or of argument, are drawn from the following sources:—

I. Massachusetts State Registration Reports.

II. Returns made to Dr. B. as a committee of the State Society, in the form of written reports from resident physicians, of one hundred and eighty-three towns.

III. Actual statistics of deaths from consumption furnished by the same correspondents. Some of these statistics are but incidentally mentioned, while



others are from towns districted and carefully examined with reference to the relative prevalence of consumption in the different districts. In some of the most important of these, the examination was made, Dr. B. states, without his correspondent or himself being aware of the existence of any law such as that which he presents.

"IV. Peculiarities of certain towns, and of villages in the same townships, in some of which consumption is quite prevalent, and in others much less so; these differences being connected most closely with corresponding differences in the amount of moisture of the soil of said places.

"V. Certain well known houses, which, in various towns, are known by the inhabitants and physicians to have been long noted as the abode of consumption, and in some of which several families have been, during the past fifty years, cut off by the disease, without the least suspicion, on the part of the occupants, of the fatal position in which the houses were placed.

"VI. Confirmatory facts, statistics, and opinions, from Rhode Island, Maine, and New Hampshire.

"VII. The medical statistics given in the Report on the health of the United States Army, strongly supporting the idea of the existence of the same law, and the operation of it over the whole of the United States.

"VIII. Results of Dr. B.'s own practice since he first became convinced of the truth of the law—said results consisting of (a) statistics from his private medical records: (b) Results actually derived from his choice of localities for consumptive patients, based on a belief in the law."

So far as the evidence goes which is derived from these several sources, and very fully and fairly set out in the report before us, it would seem very certainly to establish the following general propositions, namely, that consumption is not equally distributed over New England; that its greater or less prevalence depends very much upon the characteristics of the soil, on or near which the patients affected with it have resided; and that moisture of the soil is the only known characteristic that, so far as our present investigations have gone, is connected with the consumption breeding districts.

Among the important practical questions and suggestions which naturally arise from the subject as presented by Dr. Bowditch, are the following, which we quote entire:—

"Are there any localities in New England, which, from these investigations, we should deem unfitted for the residence of consumptive patients?

"I believe," says Dr. B., "that all towns, parts of towns, houses even, that rest on damp, cold soils, are by that very fact peculiarly liable to the prevalence of consumption. I believe that similar locations *near* wet meadows, rivers, marshes, &c., though less subject to the law, are nevertheless, in a lesser degree, promoters of consumption in the families resident thereupon. Even hills with a clayey subsoil retaining moisture, though not absolutely evil, are less good than a perfectly dry, porous soil, removed from any moisture. I suspect, moreover, that we ought to inquire more particularly than we have heretofore done, as to the exact condition of the cellar of a residence, whether it be wet or dry, even when the surroundings of the residence may seem perfectly good. All these statements I make, not on theory alone, but from actual experience, I think, of their truth, as learned from my professional practice during the past four or five years. Again, on theoretical, but I believe just grounds, I have objected to allowing consumptive patients to reside in houses, *heavily and* closely shaded by trees and vines; because the rays of the sun being prevented from reaching such abodes, dampness and extra coolness are thereby promoted. \* \* \* Following out this idea, I have, at times, thinned out trees around a residence where a family was growing up, and among which one member had already shown signs of tubercular disease."

The next question which suggests itself is: Are there not places a residence in which, according to the investigations before us, will tend to prevent phthisis, or, at least, in which consumption will prevail much less than elsewhere, or possibly not at all?

"I do not absolutely know," Dr. B. remarks, "a single spot in New England, where consumption can be said, by statistics, never to have occurred. In choos-



ing a site for a dwelling house, the great desideratum is to obtain, not a perfectly *arid* place, for no such spot could be inhabited by man, but it should be in a portion of the township which is neither so high as to be exposed to violent gusts of weather, nor so low that moisture will collect around it. Let it be on the side of a hill, or plain, open to the south, and, if possible, defended from the north and east, on a dry, porous soil, through which water freely percolates, and which, even after a rain, retains little moisture. Let the cellar be dry, in which no mould will collect. Such a situation, I believe, on theory (confirmed by my general experience), if it can be found in any town in New England, will be more favourable for the consumptive, and less likely to have consumption appear in it, than another spot, with a different exposure, and having a wet soil."

A third question presents itself: Which are the places which *experience* has shown to be the best for the residence of consumptives?

"There are two distinct classes of townships and localities," says Dr. B., "which I should place in this category. They are either inland towns or islands, eight or ten miles from the shore, and thereby being, in reality, under an oceanic climate. Doubtless, there are many more localities, besides those I shall name, scattered in almost all the inland portions of the New England States. These must be eventually discovered by the registration agents, or by the careful and conscientious investigations of resident physicians. I have had actual experience of the advantages of placing patients at Grantville, a district in the township of Needham; also, upon the drier portions of Sharon and of Canton, and at the Isles of Shoals. All these towns lie about ten or fifteen miles inland, while the islands are about the same distance from the coast. The former have the land; the other the oceanic climate influences. The townships are remarkable for the dryness of their soil, and are generally somewhat elevated. In every one of them, I have had patients improve greatly, and some, whom I believe would have died in low coast or wet inland spots, have recovered or speedily improved from serious symptoms. The patients have all described a decided and peculiar effect, as having been produced on their lungs by the atmosphere of these places, whereby they were enabled to breathe more easily.

"The Isles of Shoals are off Portsmouth, New Hampshire. From the reports of physicians I have little doubt that Nantucket, Martha's Vineyard, and possibly Block Island, lying south of Massachusetts and Rhode Island, must be likewise useful. I am also inclined to believe that Nahant and Winthrop, rocky promontories projecting from the coast, will prove favourable sites.

"It may be objected, that in suggesting an island, I virtually ignore all my previous statements, in regard to the influence of moisture, as a cause of consumption. I answer, 1st. That it is evident that a small island, with an oceanic climate, may, and probably would, produce very different effects on a patient from those caused by a place on low and damp land. Hence, the two places are evidently under wholly different influences. The two spots are not analogous. But 2d. In the places I have named, I, in reality, do not vary from the rule of dryness of the soil, for all of them are either mere rocks, rising out of the ocean, with no marshes near; or they are masses of sand, so to speak, and essentially dry of character. Hence, they do, in reality, fall within the rule—only they have the oceanic atmosphere instead of the land atmosphere, encircling and covering them.

"Whether this is really a correct explanation or not, I am certain that, in many cases of early phthisis, the tonic, clear, soft air of the Isles of Shoals, in summer, has been of immense service. Two patients spent the winter there. In one patient, a crackling throughout the whole of one breast disappeared, which I fear it would not have done had the patient remained in Boston. The winds were violent, but the temperature was less severe than in corresponding places on the shore. These winds will, however, always prevent many from residing at the shoals during the winter, unless, perchance, the inherent healthfulness of the situation, and the superb marine views, that one can enjoy there, should, in some future time, cause a Sanatorium to be erected, properly constructed, to obviate, at least in part, these difficulties."

The subject of Dr. Bowditch's communication is of too great importance, and drawn up with too much care, not to demand for it a careful and candid perusal

on the part of every medical man. If the profession generally were to turn their attention to an investigation of the influence of a dry or wet soil on the production or prevention of consumption, a mass of facts would be soon accumulated of incalculable value in directing to a rational treatment of the disease.

After a list of diseased members of the Society, and a series of obituary notices, follows a communication from Dr. A. Rupper, of Boston, on the subject of *hypodermic injections* in the treatment of neuralgic and other diseases of the nervous system.

Hypodermic injection, or the application of opiates to the immediate peripheral seat of the pain in cases of neuralgic suffering, has recently attracted considerable attention on the part of several of the British physicians, and of a few upon the continent of Europe. Of the effects of the treatment some of these gentlemen speak in the highest terms of commendation. Patients, they state, who had suffered for days and nights extreme agony from an attack of neuralgia, notwithstanding the use of large doses of morphia, have been known to sink into a state of calm repose within a few minutes after a resort to hypodermic injections. Besides the list of cases of neuralgia relieved by this plan of medication, the records of our profession present the history, also, of cases of paralysis, tetanus, delirium tremens, chorea, continued watchfulness, etc., which are reported as having been successfully treated by the hypodermic method.

In the communication of Dr. Rupper the following are the questions discussed: 1st. The requisites for obtaining satisfactory and safe results from the use of hypodermic medication. 2d. The advantages obtained by the treatment. 3d. Its disadvantages. These are followed by the history of 210 cases, treated by hypodermic injections, reported by eighteen physicians and surgeons.

As requisites for obtaining satisfactory and safe results, Dr. R. enumerates the following: *a.* That the case be a proper one. *b.* That a suitable instrument be employed. *c.* That a concentrated solution of the remedy injected be used. *d.* That the quantity of fluid injected be exactly determined and known. *e.* That a proper place be chosen for the injection; and that it be not repeated at short intervals at the same point.

As to the cases most proper for treatment, Dr. R. remarks:—

“As a general rule, it will be found that the curative effect of the operation is most manifest in uncomplicated cases of recent standing, and in those which are most benefited by morphia applied to the blistered surface. Hence, to test the value of the proposed method of relieving the pain, it is essential that the application *in neuralgia* be limited to purely neuralgic affections—where the pain is actually seated in the course of the nerve; and it must, moreover, be remembered, that agreeably to the laws by which nervous action is propagated, the irritation, that is, *the pain*, may be seated *directly on*, or reflected *indirectly on the nerve*, at any point between its extreme peripheral distribution and the point at which it joins the brain.”

“If the patient be subject to rheumatism or gout, or infected with a syphilitic taint, or is suffering from gastric and intestinal irritation, or exhibit symptoms of disease of the brain, or if we suspect pressure upon the nerve itself, caused either by a tumour or by thickening of the bony canal through which a branch of a nerve passes, we cannot expect success from subcutaneous injections, except temporarily—unless we use, at the same time, constitutional remedies appropriate to the case. In so far as this can be done, subcutaneous injection, with judicious constitutional treatment, will seldom disappoint the practitioner.”

The operation should not be performed when heart disease exists, nor where there is great debility, nor in the very aged.

In respect to the proper instrument to be employed, Dr. R. prefers a screw syringe, giving the exact number of minims used. To the body of the syringe hollow needles of various lengths are attached. The point of the needle is sharp, and perforated on one side by an oblique opening, through which the fluid to be injected is expelled. The finer the needle the better, as there will be then less loss of blood at the time, and less oozing afterwards.

Needles of tempered steel answer every purpose. In using the instrument, a fold of the skin is to be held with the left index-finger and thumb, so as to make the part beyond the fingers tense, through which the point of the needle, held



at a right angle with the part, is to be pressed, with a quick, steady movement, and then given such a direction as shall be esteemed best. The injection of the requisite amount of fluid having been effected, and the syringe withdrawn, the escape of the injection is to be prevented by pressure for a moment upon the puncture with the thumb. No adhesive plaster should be applied.

As it is important not to inject a large quantity of fluid lest undue disturbance of the cellular tissue be produced, a concentrated solution of the sedative should always be used for injecting. It is evident that the stronger is the solution we employ, the fewer number of drops is requisite to accomplish the desired result.

Our object being to procure a certain effect with as small quantity as possible of fluid, we should duly consider and accurately determine the dose of the article injected. There should always be an adequate effect produced, still there is danger in producing too great an impression. It is impossible to lay down any general rule as to the amount it is proper to inject. The history of each case must be our guide—age and sex, experience, and the results of tentative experiences being, also, taken into account. Dr. R. offers the following summary as deserving of attention :—

1-2. Chronic cases require a larger dose; while the dose for females ought to be smaller than that for males.

“3. First injections ought always to be smaller than subsequent ones, for the sake of safety. As a general rule, half the ordinary stomachic dose for males, and the third for females, ought to be used.

“4. If the injection has to be repeated, the quantity can easily be increased. In such cases, sufficient time must be allowed to elapse for the effect of the first injection to pass off before the second is given. In 174 cases, reported by 18 different physicians, where the exact quantity injected has been stated, the first injections for adult females vary from  $\frac{1}{8}$  to  $\frac{1}{4}$  of a grain of morphia dissolved in a few drops of water; for adult males, from  $\frac{1}{8}$  to  $\frac{1}{2}$  or  $\frac{3}{4}$  of a grain of the same. My average minimum dose for females is  $\frac{1}{8}$  of a grain, and  $\frac{1}{4}$  of a grain for males.

“5. In delirium tremens, mania, tetanus, and paralysis, the quantity first injected may be more powerful than in cases of neuralgia. Large doses of narcotics may be injected with perfect safety in proper cases. Thus, in a case of traumatic tetanus, under the care of Dr. W. Read, of Boston, I injected two grains of acetate of morphia in four operations, one directly after the other, without any ill effects. Dr. Béhier, of France, reports having used  $61\frac{1}{2}$  minims of a solution of sulphate of strychnia, in several cases of paralysis, in one injection, and to have repeated the operation six times. In fact, we are hardly as yet aware to what extent this treatment may be carried; further experiments are required to lay down safe and reliable rules.”

According to Dr. R., the injection in cases of neuralgia should always be made at the most painful part, which can be easily ascertained by pressure upon the nerve. By this procedure almost immediate relief will, in many cases, be obtained; otherwise, several minutes, often a much longer period, as well as a larger quantity of the narcotic is required to produce the desired effect.

In other cases than those of neuralgia, in which subcutaneous injections have been found beneficial, localization is not a necessary condition to the success of the operation. In reference to the wide applicability of this form of medication, Dr. R. remarks :—

“When all other measures have been tried and failed, as is but too often the case, to bring sleep to the restless patient, harassed by excruciating pain; when the delirious or the maniac actually defies all restraints put into service; when tetanic spasms exclude the possibility of introducing medicines into the stomach; when that member itself refuses any longer to perform its accustomed duties; when rheumatic pain constantly shifts from place to place; in surgical injuries; in puerperal peritonitis; in short, in all those affections where the nervous system at large is affected, where the pain is more or less general, the hypodermic injection of narcotics has been tried, and in all cases the effect was immediate, or nearly so, either quiet or sleep sooner or later supervening.”



The advantages of this plan of medication, according to Dr. R. are, (a.) The painlessness of its application. (b.) The speediness of its action, compared with the action of remedies however otherwise administered. (c.) Its certainty of action when all other means have been exhausted or rendered useless. (d.) The accuracy with which the amount injected can be known, enabling us thus to obtain the whole effect of the known quantity introduced. (e.) The greater benefit exerted on the local affection, by bringing the medicinal agent in direct contact with the parts involved in the disease.

The disadvantages by which the treatment is sometimes attended, are thus summed up by Dr. R.: (a.) The power of the remedy, and consequently the danger of its being used indiscriminately. (b.) The possibility of local inflammation occurring in the part repeatedly punctured. (c.) The nausea and vomiting sometimes induced. (d.) The possibility of the escape of the injected fluid through the puncture made for its introduction. (e.) The pain occasioned by the introduction in some positions of the needle. All of these alleged disadvantages, Dr. R. insists, can be overcome by the proper, careful, and skilful management of the operation.

In proof of the value and general efficacy of hypodermic medication, Dr. R. has collected from the most reliable English, French, German, and American sources 210 cases, reported by eighteen observers, in which it was employed. Forty-eight of these cases were of those treated by himself.

Of these cases 129 were of *neuralgia*, and 81, including 21 of which the reports are deficient in some particulars, were of *general nervous disorders*. Of the neuralgic cases, 55 were sciatic, 37 facial, 14 intercostal, 6 hemicrania, 5 lumbosacral, 4 cervico-brachial, 3 of upper extremities, 1 cervico-occipital.

Of the remaining (81) cases of general nervous disorders, 16 were of rheumatic muscular pains; 10 of delirium tremens; 9 of paralysis (viz., 5 paraplegia, 2 hemiplegia, 1 of lower extremity, 1 of deltoid); 4 of tetanus; 4 of pleurodynia; 3 of chest asthma; 2 of chorea; 2 of continued wakefulness; 1 of pains symptomatic of cancer uteri; 1 of mania; 1 of puerperal peritonitis; 1 of sprain; 1 of dysuria; 1 of wound of the eye; 3 of pains dependent on other affections; cases imperfect in particulars 21.

Of the 210 cases, 114 were cured, 68 relieved, 8 not relieved, and 20 were not heard from. Deduct these latter and we have 190 cases to be accounted for, which sum up as follows:—

“Cured, 114 cases, or *three-fifths* of all the cases reported.

“Relieved, 68 cases, or a fraction *over* one-third of the whole number of cases reported.

“Not relieved, 8 cases, or only *one unsuccessful* case in every 24.

“Or to recapitulate, we have the following result: *Three* out of every *five* patients were cured; that is to say, were free from pain and discharged well, at the time the case was reported. A fraction *less than one* in three patients was relieved from suffering for the time. *One* out of every 24 patients did not derive any benefit at all from the treatment.”

As Dr. R. justly remarks, the foregoing result is strongly in favour of the operation. Even though we admit that many of the cases may have been carelessly reported, and were simply relieved instead of being cured, the evidence still preponderates in favour of the treatment.

2. The initial article in the volume of communications presented at the annual convention of the Connecticut Medical Society for 1862, is the address of the president, Dr. Josiah G. Beckwith. The subject discussed is “Medical Progress.” The address is highly creditable to its author—whether it be considered in respect to the truthfulness and appropriateness of the sentiments it inculcates, as to the aptness, neatness, and beauty of the language in which these are embodied. The views it inculcates, are, it is true, by no means new. But, although they have been urged upon the notice of the profession and the public again and again, their actual importance, and proper improvement have, heretofore, been almost entirely overlooked and neglected by both.

This address is followed by an interesting series of short biographical sketches,

commemorative of some of the early physicians of Norwich, by Dr. A. Woodward, of Franklin.

To this succeeds an account of nine cases illustrative of the prompt and often permanent relief produced by the hypodermic application of narcotics and sedatives in various distressing cases of rheumatism, gastrodynia, neuralgia, obstinate vomiting towards the close of pregnancy, and spasms from a dose of strychnia taken into the stomach. Dr. B. H. Catlin, of West Meriden, by whom these cases are reported, states that, in all cases save one, the relief was prompt, decided, and permanent. In the exceptional case—that of a feeble, broken-down man, 65 years of age, labouring under organic disease of the heart of several years' standing—to control an obstinate vomiting and diarrhoea, less than half a grain of morphia was injected. The vomiting ceased, but the patient began to sink, and died about daylight next morning. Dr. C. ascribes the fatal event to the chronic maladies under which the patient had long laboured. Not half the dose of morphia employed by him in other cases with good effect was injected in this, while the little effect produced by the large and repeated doses of opium the patient had previously taken by the stomach showed that he was not particularly sensible to the impression of opiates.

The "Plastic Constituents of the Blood, their Physiological and Pathological Relations," is the title of the next communication. It is by Dr. L. J. Sandford, of New Haven. A general character of accuracy pervades the facts and doctrine set forth in the communication of Dr. S. It comprises but very few new expositions of the several points involved in the general subject discussed—little that calls for especial comment.

The same remarks hold true, likewise, in respect to the communication which follows the above, "On the Sympathetic Nerve," by Dr. N. G. Hall, of Vernon. Neither of these two papers—though both are sufficiently correct and interesting—is, in our estimation, of a character that should command for it a place in the printed transactions of a State Medical Society. Such transactions should be the medium through which are made known, for the enlargement of the general fund of professional knowledge, the personal observations of practitioners scattered over the face of the country, or facts of general application, drawn from the aggregation and collation of the observations recorded by others, calculated to elucidate the etiology, nature, progress, prevention, and treatment of the diseases most frequently encountered by our physicians. Of course, we should not object to communications giving the result of new investigations regarding the physiology of any part of the human organism, or of a new exposition of the received views relative to the laws of life.

A very good outline sketch of the symptomatology and general features of diphtheria, as it recently prevailed epidemically in different parts of Connecticut, is presented by Dr. G. R. Hawley, of Hartford. It presents no points calling for especial notice.

A report is furnished by Dr. D. Crary, of Hartford, of two anomalous cases of disease, the peculiar feature of which is their close resemblance to each other throughout; so much so that the narrative of one would be that very nearly of the other.

Both patients were males, of steady habits and uniformly good health; both were young and unmarried. Davis, who was driver of a meat cart, was of a sanguine temperament, and weighed 162 pounds. Kazar was of a bilious temperament; he weighed 125 pounds, and worked at Colt's pistol factory. Both boarded at the same house, but were not room-mates.

On Monday, Davis took breakfast and dinner as usual, and worked all day. At night he complained of headache and great chilliness. He took some (so-called) composition powder, and went to bed. Vomited during the night a considerable amount of what his landlady described as "yellow-looking matter" and of orange-peel, and had, also, a natural stool. In the morning, he looked purplish about the face, especially under the eyes; one of his legs presented the same discoloration. Red spots were observed about the face, neck, and breast. Dr. Jackson saw him between 8 and 9 o'clock A. M. He was then very restless, tossing from side to side, and exclaiming, "I'm dying! I'm dying! Can't you help me?" He at first seemed to recognize the doctor, but soon relapsed into



unconscious delirium. His tongue had the same appearance it assumes in the semi-comatose state of typhus; extremities cool, not cold; pulse at wrist imperceptible; eyes much injected and prominent; skin of face, thorax, arms, hands, legs, and feet was purple, more intense in some places than in others. Circular spots, from one to three lines in diameter, and somewhat like what is known as blood-blisters, appeared upon the face and neck. The tongue had a dark coating, and the lips and teeth were loaded with similar coloured sordes. Death took place at about 9 A. M. of the same day.

When he heard at noon that Davis was dead, Kazar went into the room where the corpse lay. On his return he seemed much frightened, was pale, and scarce able to stand. At table he ate very little. At 3 o'clock he returned from his work, complaining of cold. During the afternoon he had frequent chills. On going to bed in the evening he took some "composition powder." During the night he vomited great quantities of very dark bilious-looking matter, and had also a natural passage from the bowels. In the morning Dr. Gary found him pulseless, with nearly cold feet and hands, and a furred blanched tongue, similar to what is met with in the last stages of cholera. Petechiæ were scattered over almost the entire surface. His face, hands, and feet, his arms to the elbows, and his legs to the knees, were covered with petechial spots of all sizes from that of a half dime to that of a dollar or over. The face presented a commingling of black and blue welts one or two inches long, as though caused by the blow of a whip. His mind was perfectly clear and calm. He complained of pain of the head over the eyes, with coldness of hands and feet. He stated that on his way home the preceding afternoon he had taken a glass of cider brandy, after which, for a short time, he felt better.

A consultation was had with Drs. Hastings and Jackson, and the patient put on the use of quinine, brandy, and pepper, with hot applications to the extremities. No reaction took place, and the patient died at about 11 o'clock A. M.

The small spots scattered irregularly over Davis's face and neck, of the size each of a No. B shot, appeared after death of a bright scarlet colour; the small spots on Kazar were smaller, not so bright, but more like the petechiæ of typhus fever. Davis, but not Kazar, up to the period of his death, had extreme thirst. Davis lived from the beginning of the attack about fifteen hours, Kazar twenty-one hours.

The history of a case of cerebro-spinal disease is reported by Dr. R. Deming, of Sharon. So far as the facts connected with this case are furnished in the history before us, they are both curious and interesting—it might have been rendered instructive also, had an examination of the patient's body been made after death. As it is, the case furnishes no light to lead us to definite judgment as to the true pathology of any attack, marked by similar phenomena, we might happen to meet with.

The notes of a case of ligation of the external iliac artery are given by Dr. J. W. Lawton, of Naugatuck. The patient received a stab one evening from a long penknife blade in the right thigh, three or four inches below Poupart's ligament, the wound being in a direction upwards and outwards in the line of the adductor longus muscle. From twenty to thirty ounces of blood were lost. A temporary dressing was applied, until the patient was removed to his home; when, as the hemorrhage was nearly arrested, no examination of the wound was made, but merely a compress and bandage were applied. Reaction was established, and the next day the patient, though weak, was otherwise comfortable. The symptoms proceeded favourably for a week. On the eleventh day the patient became restless and uneasy, and a strong arterial impulse was noticed. As Dr. L. bent down to examine the wound, blood gushed from it, in a full stream, to the amount of twenty ounces. By the application of a compress, and a silk handkerchief as a tourniquet, the hemorrhage was completely controlled. Drs. Platt and Hooker were called in consultation. The wound was now thoroughly examined, the clots broken up, and warm water injected, without any return of hemorrhage. The finger passed into the wound detected the pulsation of the femoral artery. Any operation was deemed inexpedient, from the danger attending it—the risk of secondary hemorrhage, and the uncertainty as to what artery was wounded. Pressure alone, by means of a tourniquet and compress,



was relied upon. This was watched by faithful assistants, with instructions to increase instantly the pressure should bleeding occur. On the second night subsequently ten ounces of blood were lost.

October 4th, eighteen days after the accident, bleeding occurred at intervals during the day. At 4 P. M., notwithstanding constant pressure was made over the groin, blood would jet out at times, in fine streams, to the height of several inches. The parts had become tender and intolerant of pressure. Ligation of the external iliac was now performed by Dr. Hooker. The wound was dressed with silver wire sutures, adhesive straps, and compresses. Three hours after the operation the patient complained of some pain, and vomited constantly from the effects of ether. A sixth of a grain of morphia directed to be given occasionally. Two days subsequently vomiting unchecked, limb warmer than natural, and so continued for weeks; it was quite tender, patient very restless. Bismuth and calomel ordered. At night pain increased, knee swollen. The patient became more stupid, restless; suffered severe pain; tongue brown, dry, and coated. Morphia discontinued, while milk punch and generous diet were ordered.

Oct. 8th. Patient comatose; knee exquisitely tender, with indistinct fluctuation; pulse 110 to 115. In addition, ten grains quinia per day were ordered, with fomentations to knee. The next day the patient was apparently moribund. The day after, the patient was found to be rational, his limbs cool, pulse 80 and weak. Same treatment continued. By night the pulse was stronger, and all the other symptoms more favourable. From this time the patient gradually improved. The ligatures all came away except one, which remained in nearly four weeks.

During the period of convalescence a swelling occurred at the angle of the lower jaw, on the right side, which increased rapidly, involving the side of the face and neck, extending down upon the chest. It terminated in a large abscess, an incision into which gave discharge to nearly half a pint of pus with sloughs of parotid gland. The discharge continued for several weeks, and the incision healed. The knee now grew worse, inflamed and painful, with an indistinct feeling of fluctuation.

Dec. 10th. The patient was removed to the hospital at New Haven, under the care of Dr. Charles Hooker. From this time his general condition constantly improved; the knee, however, remained flexed and ankylosed.

D. F. C.

ART. XXI.—*Reports of American Institutions for the Insane.*

1. *Of the Pennsylvania Hospital for the Insane, for the year 1861.*
2. *Of the Friends' Asylum, for the fiscal year 1861-62.*
3. *Of the Western Pennsylvania Hospital, for the year 1861.*
4. *Of the Bloomingdale Asylum, for the year 1861.*
5. *Of the McLean Asylum, for the year, 1861.*
6. *Of the Massachusetts State Hospital, at Northampton, for the fiscal year 1860-61.*
7. *Of the Longview Asylum, for the year 1861.*
8. *Of the New Hampshire Asylum, for the fiscal year 1861-62.*

1. SHOULD the progress of the next century, in the province of psychiatry, be equal to that of the century at the termination of which we write, the problem of The Perfect Hospital for the Insane can hardly fail of being solved. In this remark we allude not alone to the minor details of organization, classification, discipline, and the diversified means for the administration of a perfect moral treatment, but to the great primary question of the character of the hospital as it regards the sexes, and the duration of the disease of its patients. The Germans have tried almost every form of hospital in these respects, without, hitherto, arriving at unanimity of opinion upon the subject; but, so far as our knowledge extends, they have not tried that which has recently been adopted at the *Pennsylvania Hospital for the Insane*—the intermingling of both recent

and chronic cases, but the separation of the sexes by buildings somewhat remote each from the other, yet both under the same general administration and the same physician in chief. It is an experiment challenging the attention and the interest not only of American but also of European colonists. The testimony borne by Dr. Kirkbride in relation to the subject, after his second year of trial, is as follows:—

“Another year’s experience has confirmed our previous impressions of the great value of the new arrangements, and has demonstrated more fully, if additional proof were still wanting, that the treatment of the two sexes in different buildings, as here conducted, without having, as far as we can discover, a single objection, has unquestionably many and important advantages.”

This certainly looks encouraging; but it is no more so than we expected after having visited the Institution, examined both departments with all their admirable arrangements and appliances, and duly considered the whole establishment in its relation and adaptation to the wants of the insane.

	Men.	Women.	Total.
Patients in hospital Jan’y 1st, 1861 . . . .	151	123	274
Admitted in course of the year . . . .	96	86	182
Whole number . . . . .	247	209	456
Discharged, including deaths . . . . .	119	82	201
Remaining, Dec. 31, 1861 . . . . .	128	127	255
Of the discharged, there were cured . . . .	46	46	92
Died . . . . .	21	8	29

*Causes of death.*—“Acute maniacal disease,” 10; chronic softening of the brain, 5; pulmonary consumption, 4; exhaustion of chronic mania, 3; apoplexy, 3; suicide, 1; disease of heart, 1; dropsy, 1; “effects of a long journey,” 1.

“The sixteenth annual course of lectures and evening entertainments which terminated at the usual period of the last summer, was, as those heretofore given, of nine months’ duration—three times a week at least, at each department—and occupying about two hundred and fifty evenings. These entertainments being on alternate evenings at the two buildings, anything of special interest occurring at one, can be enjoyed by patients from the other; and this has been frequently done. A company of forty ladies has on several occasions gone to the new building during the past year.”

“Every year adds to the conviction of the great importance of these entertainments in the management of a hospital for the insane. It is quite possible, with proper zeal and determination, to make the evening hours in such institutions the most pleasant in the whole day. Without some decided effort, however, this period is apt to become specially tiresome, and the wards, then, to present their most listless and discouraging appearance. From sunset to bedtime there should be a persistent effort on the part of all, to have something on hand that will, at least to some extent, excite the interest and attract the attention of even those of least mental activity. The first step is to have the corridors and parlours cheerfully lighted and comfortably furnished, to have in progress agreeable work, pleasing games, interesting to lookers on as well as players, pictures of various kinds, pleasant reading or music, and varying novelties that those best qualified for positions here will be constantly suggesting. In this work the officers of course must take the lead. There must be nothing likely to benefit the patients ever so little, too small or too low for their attention and interest. In this connection the services of the supervisors and of those employed specially as companions to the patients, on account of the greater amount of time they may devote to it, become particularly valuable. No less important is the interest of the attendants in their various wards, nor the assistance of convalescent patients, who often confer great benefits on those around them.

“As a general rule, the evenings devoted to lectures are pretty well occupied in preparing for them, by the hour in the room, and a pleasant talk on what has been seen or heard, afterwards. The other evenings of the week should never be neglected, as there is always some danger of their being.

“In nearly all cases, life, to be really happy, must be one of action. Especially



is it so in a hospital like this. From the hour of rising in the morning till that of retiring at night, except in cases of ordinary illness or high excitement, almost constant movement, change of occupation, variety of scene and surroundings, cheerful physical exercise and prudent mental employment are needed for every day, to develop the most successful results and aid in promoting cheerfulness and tranquillity in the wards. In carrying out all these objects, it must not be forgotten that they lose half their value if done simply as a required duty, without that personal interest and hearty good-will which rarely fails to convince patients, that what is urged upon them, is really intended to promote their comfort and restoration."

In all our reading of the reports of hospitals for the insane, we have met nothing more gratifying, nothing more truly indicative of a consciousness of one of the greatest stumbling-blocks of the hospital as it was, or of the necessity and the true method of removing that stumbling-block before we can obtain the hospital that is to be, than the foregoing extract. Dr. Kirkbride's words "specially tiresome," entirely fail adequately to express the character of the evenings in the hospitals of the olden time. The corridors in darkness, or each lighted by one miniature flame which only served to throw a sepulchral gloom along its wearisome length; the silence, unbroken but by the occasional raving of a maniac, or the gibberish of an imbecile; the stealthy, solemn, and solitary pacing to and fro, in the gloomiest portion of the hall, of some patient absorbed in the contemplation of his delusions; the lounging in chairs, the squatting in corners and along the side-walls, and the lying at full length, on back or on belly, upon the floor—these presented a picture—alas! *not* a picture, but a sad reality, a concrete embodiment of monotonous sluggishness, of ineffable stupidity, of a mental and physical apathy injurious to the participator, and depressing and discouraging to the beholder. As the frog, in the mathematical proposition, lost at night two of the three feet which, in his worthy endeavours to escape from the well, he had gained in the course of the preceding twelve hours, so, we have often thought, the patients subjected to, or permitted in, this course of melancholy listlessness, "fell back" in the evening through at least two-thirds of the distance toward health achieved during the day.

It needs no spirit of prophecy other than that derived from a mediocre knowledge of human nature to foretell the effects, or at least, the *tendency* of our national difficulties upon our hospitals for the insane. Those effects should, if possible, be prevented, that tendency opposed. Hence, we reproduce the following remarks, believing that they will be indorsed by every physician of long experience in the management of one of those hospitals:—

"No matter whether an institution is specially for the affluent, for the reception of all classes, or the humblest pauper hospital in the land, true economy consists in an avoidance of all waste, in having nothing done that is not useful in some way, in keeping everything in the highest state of efficiency, and doing all that is likely to restore to society its afflicted citizens in the shortest possible time. The best arrangements will always be found cheapest in the end, and the highest class of qualifications in every department, with liberal compensation, will prove more economical than inefficiency at the lowest grade of remuneration.

"In periods of unusual financial depression, when nearly every one is apt to feel the necessity for a reduction of personal expenses, there is always danger of the management of these institutions for the *cure* as well as the care of the insane, making the grave mistake of doing something as a means of lessening their expenses, that must unavoidably lower their character and impair their usefulness. Retrenchments may thus be carried to that point that they become absolute extravagance. This is clearly so if they diminish the usefulness of an institution, lessen the confidence of the public in its efficiency, and thus reduce its income to a far greater extent than they lower its expenditures. It can never be economy to neglect any available means of restoring the sick, of improving the condition of all the patients, and doing thoroughly what an institution has been specially established for. One establishment may expend scarcely more than half what another does, and yet if these expenditures are injudicious, it may be both wasteful and extravagant, while the other is truly economical."



2. Of the comparatively small, but the truly comfortable and domestic, or home-like Friends' Asylum, Dr. Worthington says:—

"Originating at a time when no institution existed in this country, that could serve as a model for its plan of construction, the founders of the asylum showed, by the quantity of land purchased, and by the amount of space allotted to each patient, in the construction and general plan of the building, a degree of liberality which has probably not since been surpassed. How far the asylum may have been successful in other respects in keeping pace with the progress of improvement, or how far the means employed in it, as compared with other institutions, may have contributed to the relief and restoration of the insane, is not for us to judge. It will be sufficient to say that during the past, as in previous years, we have felt the responsibility resting on us of diligently employing, for the benefit of our patients, every means within our reach, which the general experience has proved to be of real utility.

"The objects of its founders, besides furnishing medical aid, and suitable moral and religious restraint, mingled with judicious kindness and sympathy, for the restoration of the insane to the inestimable gift of reason, were also to provide an asylum for the relief of those whose disease was such as to leave no hope of recovery; where they might enjoy the comforts of home so far as they were capable of appreciating them, accompanied with every liberty consistent with their welfare and safety. These objects, it is believed, have been kept steadily in view, and it has been found, by constantly increasing experience, that the amount of personal restraint on the movements of the insane, deemed necessary for their own, and the safety of others, has regularly diminished down to the present time. *We have not in any case, for several years past, considered it needful to apply mechanical restraint for the prevention of acts of violence and destruction, and we have only resorted to it in any form in cases where severe bodily disease or debility has rendered a recumbent position indispensable to the safety of the patient's life.*"

The Italics are by the reviewer, and *not* by the author.

	Men.	Women.	Total.
Patients on the 1st of March, 1861	.	.	61
Admitted in the course of the year	.	.	15
Whole number	32	44	76
Discharged, including deaths	6	8	14
Remaining, March 1st, 1862	26	36	62
Of those discharged, there were cured	3	3	6
Died	1	3	4

*Causes of death.*—Cerebral congestion, 1; pneumonia, 1; general paralysis, 1; chronic bronchitis, 1.

The lectures and other evening entertainments were resumed and continued through the winter. The lectures were "listened to, and the experiments witnessed with much interest, by a large proportion of the patients." From the further exposition of the plan of moral treatment we make a few extracts.

"The value of out-door occupation consists as much in the change and variety it gives from the monotony of in-door asylum life, and the mental recreation thus afforded, as in the mere physical effects of muscular exercise. Without regard to the interest that may be excited in the mind of the patient by the work he performs, there is danger that the latter, by becoming toilsome, may even prove injurious. Care is taken to avoid such a consequence by endeavouring to interest the patient in his employment, and by limiting the time spent in labour to two or three hours in the early part of each day. \* \* \* \* For those who have been unaccustomed to agricultural labour, other means of furnishing physical exercise, combined with healthy mental excitement, are resorted to. Such patients spend a portion of each day in the open air, either in walking on the premises or in the vicinity of the asylum, or are engaged in the games of quoits, cricket, or foot-ball. The latter have only been in use during the last two years, and have proved a highly valuable addition to the means formerly employed for affording exercise to this class of our patients."

"The patients are encouraged to follow their own taste and inclinations in their in-door employments. Some of them became quite expert at a particular game, such as chess or backgammon; one patient draws and paints, and has produced a number of pictures, both in oil and water colours, which have been framed and hung on the walls. Another employed himself very successfully during the portion of the summer, in preparing the skeletons of leaves and other portions of plants; and another, who is so demented as to be almost incapable of any other employment, has become very proficient in the game of battledoor."

3. Our readers have already been informed of the efforts made by the managers of the Western Pennsylvania Hospital to erect, for their insane patients, a new building which should rank among the best institutions of its kind, as well as of the progress which, from year to year, they have made in their enterprise. The report now before us is embellished with a beautiful perspective view of the building as it is intended to be when complete. It is called "The Dixmont Hospital." Of its condition at the date of this report, as well as for its general plan, we quote the language of its architect, whose report is a model of compactness and perspicuity which might well be studied by scientific and literary men.

"The work on the new buildings of the Hospital for the Insane at Dixmont, is now nearly completed, the plastering being finished, and the carpenters being now engaged in putting up the finishing of the wood work inside of the building. Excepting the fixtures for heating, ventilation and water supply, which are all yet to be provided for, the buildings will be completed and ready for occupancy by the 1st of May next.

"The hospital proper consists of a central building, sixty-one feet front by one hundred and thirty deep, and four stories in height, arranged for the use of the officers, and to form store rooms and chapel. On each side of this central building extends a wing building, one hundred and four feet front by thirty-eight feet deep, and three stories in height, arranged with dormitories for use of the patients; each wing finishing with a building at the end of it, forty-five feet front by fifty-five feet deep, and four stories in height, arranged for day rooms of the patients. These buildings are erected with walls of brick, covered with roofs of iron, and have stone stairways, the whole being substantially constructed and finished in a neat, plain manner, the plan being arranged in reference to future extension by addition of other wings, to accommodate more patients.

"Detached from the hospital is, first, a building for the laundry, bakery and boiler room, forty-five feet by fifty-five, and two stories high, built of stone and covered with iron. Next, a building at the river for a pump house, twenty-six feet square and one story high, built of stone and covered with iron roofing. Lastly, a building for station house at the railroad, seventeen feet by thirty-two, built of brick and roofed with iron."

It is proper to state that the plan of the hospital embraces two additional wings, very similar to those already erected and to be appended to their extremities.

	Men.	Women.	Total.
Patients in the Western Pa. Hosp., Jan. 1st, 1861	59	52	111
Admitted in the course of the year . . . . .	63	32	95
Whole number . . . . .	122	84	206
Discharged, including deaths . . . . .	55	41	96
Remaining, Dec. 31st, 1861 . . . . .	67	43	110
Of the discharged, there were cured . . . . .	31	19	50
Died . . . . .	6	4	10

Died of consumption, 2; exhaustion of acute mania, 2; enteritis, 2; chronic dysentery, 1; congestion of the brain, 1; typhoid fever, 1; old age, 1.

In pleading for additional facilities for moral treatment, Dr. Reed says:—

"As a relief from trouble and anxiety of mind, men resort to occupation and pleasant amusements, and when the mind has become deranged the necessity for such treatment is greater. It is not *inaction* that is desired to accomplish

a cure, but a change of *action*. In recent insanity the mind will not rest, and unless constant and urgent inducements to healthy action are presented, and new channels opened for the thoughts and affections, the patient will indulge in his perverted feelings and distorted ideas, until *dementia* places him beyond hope. It is this condition we wish to prevent, or at least postpone. We desire not to abandon the patient to blind chance, or allow him to grow worse by neglecting to provide every proper remedy."

When his patient shall have been removed to Dixmont, the doctor may look with a larger hope and a firmer faith for a more complete equipment for the battle against the disease with which he is contending.

From what follows, it appears that the insane have not lost their patriotism or their beneficence.

"One hundred and ten shirts were made for the soldiers at Washington, by the patients and employees, the materials having been purchased by the contributions of officers and employees."

4. It must have required labour to make the report of the *Bloomington Asylum*. What with one-third of a page of margin at its beginning, and one quarter of a page at the end, it occupies two pages.

	Men.	Women.	Total.
Patients Jan'y 1st, 1861 . . . . .	71	84	155
Admitted in course of the year . . . . .	60	51	111
Whole number . . . . .	131	135	266
Discharged, including deaths . . . . .	58	57	115
Of the discharged, there were cured . . . . .	22	20	42
Died . . . . .	12	7	19

"Several patients discharged improved," says Dr. Brown, "are known to have recovered after returning to their homes. The deaths were occasioned, in six cases, by acute mania, with great excitement; in two by general paralysis; in two by chronic disease of the brain with partial paralysis; in two by apoplexy; in one by suicide; in five by pulmonary consumption and marasmus; in one by disease of the kidneys. Four patients died within a fortnight after admission.

"While the average number of patients for the year as compared with that of the previous one, is scarcely less, there is an actual diminution of twenty in comparing our present household with that of some portion of last year. This falling-off is occasioned by the wide-spread pecuniary reverses, compelling the removal of many patients to State and municipal institutions."

5. The *McLean Asylum* has been enlarged by the erection of a wing intended for the cases of insanity in its more severe and violent forms. "The apartments are spacious and cheerful, and thoroughly ventilated; and for comfort, elegance, and adaptation to the use designed, are unequalled."

	Men.	Women.	Total.
Patients, January 1st, 1861 . . . . .	91	96	187
Admitted in course of the year . . . . .	55	56	111
Whole number . . . . .	146	152	298
Discharged, including deaths . . . . .	60	50	110
Remaining, Dec. 31st, 1861 . . . . .	96	92	188
Of the discharged, there were cured . . . . .	31	23	54
Died . . . . .	9	14	23

Died from chronic insanity, 8; general paralysis, 5; typhomania, 3; chronic disease of the liver, 2; phthisis, 2; epilepsy, 2; apoplexy, 1.

Dr. Tyler has devoted nearly the whole of his report to a dissertation upon the psychological condition of the country, as affected by the war.

6. The leading statistics of the report of the *Massachusetts State Lunatic Hospital*, at Northampton, are as follows:—



	Men.	Women.	Total.
Patients, September 30, 1860 . . . .	137	178	315
Admitted in course of the year . . . .	70	52	122
Whole number . . . . .	207	230	437
Discharged, including deaths . . . .	58	47	105
Remaining, September 30, 1861, . . . .	149	183	332
Died . . . . .	15	15	30

Died with phthisis, 9; marasmus, 8; epilepsy, 3; maniacal exhaustion, 2; pneumonia, 2; cancer, softening of brain, typhomania, general paralysis, apoplexy, chronic diarrhœa, 1 each.

In allusion to the number of patients who died "from the slow wasting away which removed so many in the last stages of chronic dementia," Dr. Prince says:—

"Of these cases we have a very large proportion received from the other hospitals at the opening of this institution. This fact will for several years make our mortality larger than the average in hospitals, and also give an extraordinary proportion of deaths from chronic diseases."

It is to be regretted that the number of cures is not stated. We perceive no motive for withholding it other than that, from the proportion of chronic cases in the establishment, it is undoubtedly small. But all proper allowance would be made for that, and it is a pity that the statistics of insanity should not be kept as full and as accurate as possible.

"Our means of amusement have been enlarged by the addition of a bowling alley, containing two boards. An appropriation of eight hundred dollars was made by the last legislature for the purpose, and a substantial brick building has been placed in a convenient spot, containing everything needed. It will soon be finished and occupied, and add greatly to the health and recreation of those for whom it was designed.

"A billiard table was considered such an indispensable article of furniture, that one has been placed in a convenient position (thus far without cost to the institution or the State), in the hope that its importance as a means of exercise, health, and amusement, would be acknowledged, and the means of securing so desirable an article be furnished.

"Under the general head of amusements may be included the usual games made use of as relaxative, besides walking, fishing, hunting, pic-nics, excursions to points of interest, reading, concerts, dances, &c., all of which serve to vary the monotony of hospital life, and excite new and interesting currents of thought.

"The library has been increased somewhat, both by purchase and by donations from friends of the institution or of the patients. New pictures have been added to those which already adorned the walls. A room has been fitted as a reading-room, and supplied with the daily papers, thus supplying a want long felt and regretted."

Several pages of the report are occupied by an appeal for special provision for the treatment of habitual inebriates, but nearly the whole of it is quoted from the writings of Dr. Kirkbride.

The extract given below shows the quality of the water to the use of which the inmates of this hospital are subjected—and this, too, when "there is, upon the grounds of the institution, a never-failing spring of most excellent water, yielding a quantity sufficient, during the greater part of the year, to supply their daily wants."

"I should not feel that I had laid the matter fully before your Board if I omitted to speak of the quality of the water thus scantily and irregularly and expensively furnished. I have already, at different times, drawn your attention to the colour, and I may say the consistency of the article, as it has appeared in the reservoirs. You have found it holding in suspension so much foreign matter as to render it opaque. This matter consists of the natural debris which a rapid stream, supplied by many feeders and flowing through a soil of various composition, always carries with it. To this is added a miscellaneous mass of impurity poured into it by a great variety of manufacturing establishments. The mixture is at times disgusting to the sight and smell, and its effects equally offensive in

the laundry and the kitchen. The precipitation of vegetable matter in the large boilers, as you are aware, will probably soon create a necessity for expensive repairs, by the 'burning' and 'scaling' of the iron where most exposed to the action of the fire."

7. At the *Longview Asylum*, those parts of the numerical history of the hospitals which we are accustomed regularly to reproduce, are represented by the following figures:—

	Men.	Women.	Total.
Patients, November 1st, 1860 . . . . .	151	183	334
Admitted in course of the year . . . . .	111	76	187
Whole number . . . . .	262	259	521
Discharged, including deaths . . . . .	96	68	164
Remaining, November 1st, 1861 . . . . .	166	191	357
Of the discharged, there were cured . . . . .	67	48	115
Died . . . . .	12	14	26

Died from phthisis, 10; general paralysis, 5; maniacal exhaustion, 4; senile debility, 2; apoplexy, 2; epilepsy, 1; marasmus, 1; cerebral congestion, 1.

"Quite a large number died of diseases not directly connected with their insanity. Many of them were very old patients; half of them had been in asylums more than ten years; some were inmates of the lunatic department of the Commercial Hospital, Cincinnati, as far back as 1832, beyond which there are no records of that institution.

"There has been but little sickness in the house originating after the admission of the patients; and there has been entire freedom from epidemics, or diseases of any kind depending upon general causes, such as location, &c. In one respect this has been quite remarkable, although something similar has been observed in other asylums. Intermittent fever has prevailed extensively in the immediate neighbourhood of the institution, and has attacked several of the residents, including the superintendent; but not one of the insane has been at all affected by it.

"Of the whole number of recoveries, ninety-two were of patients admitted during the year; and much the larger portion were brought to the asylum within a month of the commencement of the disease. Of those who had been labouring under the disease one year or more before being brought in, but little over one-fourth recovered."

While treating of the origin of insanity, Dr. Langdon, judging from his own patients as well as from the opinions of other physicians, says "by far the greater number of cases are produced by causes which directly depress the vital energies. This is farther shown by the condition of the great majority, almost all, of the patients when they came into the house. Feeble, depressed, and emaciated, they require tonics and supporting treatment, and generally show improvement in the state of their minds as their physical strength improves."

As the *Longview Asylum* is intended chiefly for paupers, and as the old establishment, for which it is the substitute, was but poorly provided with the means of moral treatment, we rejoice in the assertion that "during the year there have been many additions to our means of recreation and amusement. Among these are a bowling alley, a magic lantern, a melodeon, singing birds, flowers, and pictures.

The annexed paragraphs are worth reading, both for their further exposition of the moral treatment, and for the discordance of some of the opinions therein expressed with the opinions of some others of the superintendents of hospitals:—

"Once in each week we have had dancing parties, which have been attended by a large number of the patients with evident benefit, in some cases increasing their cheerfulness, exciting more interest in external matters, withdrawing them from the contemplation of their morbid fancies, and stimulating their minds to activity in a new direction. These parties are very much enjoyed, and anticipated with great pleasure by all the patients who are able to attend them; furnish material for conversation both before and after, and seem to be generally productive of good. The same may be said of concerts, which we occasionally

have of an informal kind—music, both instrumental and vocal, having a quieting effect at the same time that it tends to break up their habitual morbid train of thought.

“Religious services have been discontinued for a long time, as they do not appear to have any beneficial effect, and sometimes do positive harm. The religious education and belief of the patients differs so widely that it is almost impossible so to arrange it as not to offend and excite some portion of them when any religious services are held. We have Jews and Christians, Protestants and Catholics, Spiritualists and Infidels in the house, all as firmly convinced of the truth of their own particular belief and as intolerant of any other as if they were perfectly rational, and any appearance of favouring one or the other form excites prejudice and destroys that trust and confidence which is of so much benefit in the treatment of the insane.

“It can hardly be claimed that there is a necessity for religious exercises among persons not able to transact the ordinary business of life in consequence of their disorder of mind. Nor would it be easy to find a person so peculiarly gifted as to be able to conduct such exercises in a manner that would at least do no harm.

“For reasons somewhat similar, no funeral services are had at the institution, the mere knowledge of a death taking place is of itself depressing, and has a pernicious influence on many of the inmates, and to impress it on their minds by funeral services seems to me would be productive of only bad results.”

We have taken the liberty to italicise one clause in this extract. Of the 521 patients treated in the course of the year, only 163 were natives of the American continent, while 353 were Europeans.

8. The general items of the register of the *New Hampshire Asylum*, for the year terminating with the close of April, 1862, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year . . . . .	88	108	196
Admitted in course of the year . . . . .	45	41	86
Whole number . . . . .	133	149	282
Discharged, including deaths . . . . .	45	49	94
Remaining at the end of the year . . . . .	88	100	188
Of the discharged, there were cured . . . . .	20	21	41
Died . . . . .	10	3	13

Died with epilepsy, 5; “dropsy from disease of heart,” 1; “disease of the heart originating in rheumatism,” 1; chronic pleurisy, 1; exhaustion of acute mania, 1; general paralysis, 1; organic disease of the brain, 1; exhaustion of chronic insanity, 2.

“Much sewing, knitting, and similar work has been done by the female patients, which has a second value, great, though less than that accruing to the labourer herself. This is emphatically true of a considerable amount of sewing and knitting done for the army. No occupation has seemed to afford them more unalloyed pleasure, than that done for the noble and self-sacrificing defenders of our country.”

The hospital having completed the twentieth year of its operations, the occasion is seized by Dr. Bancroft to give a brief sketch of its history, with reflections suggested by its results. From the account of the proceedings preliminary to the action of the legislature authorizing the construction of the hospital, we take the subjoined extract.

“At length a call was made on the several towns for statistical information as to the number and condition of the insane, and the responses to this call early confirmed their previous convictions. Returns were received from 161 towns. Of these only 20 were without insane persons. In the balance of the towns there were 312 insane, and of these 152 were entirely a public charge; 160 being independent of public charity. Of the whole number, 81, or nearly 26 per cent., were confined in cages, jails, close rooms, handcuffs, or the like. Insanity had existed in these individuals for periods varying from a few weeks to sixty years; the average of the whole being about thirteen and one-half years. In the report



of the committee deputed to collect these facts, made to the Legislature in 1836, they declare 'that the horrors of the present condition of the insane are far from having been exaggerated.'"

The following selections are from the remaining portion of this section of the report.

"The theory and policy of the guardians, as well as the successive physicians, has been to reduce the difference between the wards of the Asylum and a well-regulated household, to the lowest point consistent with safety, and the integrity of the best curative agencies."

"Even in the wreck of reason and responsibility, nature has kindly provided that the human being need not be wholly a wreck. Such is the organization, that, like an automatic machine, when the intelligent, directing mind is cast from its supremacy, still, under a law of habit, if the individual can be under the influence of another mind to keep him in motion, he will follow to a great extent the routine of ordinary life, when, without this exterior influence, he would subside into stupid inaction, and fall under the direction of the mere animal instincts. It is by availing themselves of this principle, that asylums, in cases of the incurable, are able to transform what would otherwise be little more than existence into a life possessing many rational occupations and enjoyments."

"Of the 1927 who have been received into the Asylum, 841 have been restored to mental soundness. \* \* \* It is not easy to calculate the value of the restoration to society of this considerable number of insane, or to estimate the amount of pain and sorrow mitigated or relieved by their escape from a fate more to be dreaded than death. But whatever society, the domestic circle, or bleeding hearts, may realize from these restorations, it is of small account compared with the reinstating of reason in the mind from which it had been dethroned; the restoring of delicate sentiments and affections, the perversion of which had changed the sweets of life to bitterness."

The first Superintendent of this Institution was Dr. George Chandler, afterwards Superintendent of the Massachusetts State Hospital, at Worcester, and now a resident of that city, but retired from active duty in the profession. His successors have been Dr. Andrew McFarland, now having charge of the State Hospital of Illinois, Dr. John E. Tyler, now at the head of the McLean Asylum, and Dr. J. P. Bancroft, the present incumbent. P. E.

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ART. XXII.—*Border Lines of Knowledge in some Provinces of Medical Science.*

An Introductory Lecture, delivered before the Medical Class of Harvard University, November 6th, 1861. By OLIVER WENDELL HOLMES, M. D., Parkman Professor of Anatomy and Physiology. Ticknor & Fields: Boston, 1862. 8vo. pp. 80.

INTRODUCTORY LECTURES are, for the most part, froth upon the ale of science. As the bitterness and exhilarating influences of the beverage are foreshadowed in the taste and effervescence of the foam, so the nature and the power of the science are often exhibited in that first lecture which introduces it to the attention of the student. The drinker looks with pleasing anticipations upon the bubbles as they rise in his glass, and the student is filled with bright expectations by the sparkling thoughts of the introductory as they fall from the lips of the enthusiastic professor. But as the evanescent foam is blown lightly away and forgotten even before the cup is drained, so the ephemeral introductory is remembered no longer than the hour in which it was pronounced. The specimen, now before us, of this peculiar kind of literature, has been clothed in a more enduring garb than is generally awarded to its fellows, and may possibly eke out a longer existence. It is written in a lively and attractive manner, and abounds in bold, dogmatic statements, which are, occasionally, more satirical, however, than truthful.

The object and the scope of the lecture are thus happily told:—

"Science is the topography of ignorance. From a few elevated points we triangulate vast spaces, enclosing infinite unknown details. We cast the lead, and draw up a little sand from abysses we shall never reach with our dredges.

"The best part of our knowledge is that which teaches us where knowledge leaves off and ignorance begins. Nothing more clearly separates a vulgar from a superior mind, than the confusion in the first between the little that it truly knows, on the one hand, and what it half knows and what it thinks it knows, on the other.

"That which is true of every subject is especially true of the branch of knowledge which deals with living beings. Their existence is a perpetual death and reanimation. Their identity is only an idea, for we put off our bodies many times during our lives, and dress in new suits of bones and muscles.<sup>1</sup>

"Thou art not thyself;

For thou exist'st on many a thousand grains

That issue out of dust.'

If it is true that we understand ourselves but imperfectly in health, it is more signally manifest in disease, where natural actions imperfectly understood, disturbed in an obscure way by half-seen causes, are creeping and winding along in the dark toward their destined issue, sometimes using our remedies as safe stepping-stones, occasionally, it may be, stumbling over them as obstacles.

"I propose in this lecture to show you some points of contact between our ignorance and our knowledge in several of the branches upon the study of which you are entering. I may teach you a very little directly, but I hope much more from the trains of thought I shall suggest. Do not expect too much ground to be covered in this rapid survey. Our task is only that of sending out a few pickets under the starry flag of science to the edge of that dark domain where the ensigns of the obstinate rebel, Ignorance, are flying undisputed. We are not making a reconnaissance in force, still less advancing with the main column. But here are a few roads along which we have to march together, and we wish to see clearly how far our lines extend, and where the enemy's outposts begin."

The salient points of the sciences of chemistry, human and pathological anatomy, microscopy, physiology, medicine, and surgery, are made to pass before the reader in cursory but piquant review. In the course of his remarks upon chemistry, Dr. Holmes takes occasion to dwell for a moment upon the fruitlessness of attempting to explain the essential nature of chemical affinities and crystalline types, and of determining the identity of the substances with which we deal, and the laws of their combination. In this connection he reminds us of the allotropic conditions of sulphur and phosphorus, and says:—

"These facts of allotropism have some corollaries connected with them rather startling to us of the nineteenth century. There may be other transmutations possible besides those of phosphorus and sulphur. When Dr. Prout, in 1840, talked about azote and carbon being 'formed' in the living system, it was looked upon as one of those freaks of fancy to which philosophers, like other men, are subject. But when Professor Faraday, in 1851, says, at a meeting of the British Association, that 'his hopes are in the direction of proving that bodies called simple were really compounds, and may be formed artificially as soon as we are masters of the laws influencing their combinations'—when he comes forward and says that he has tried experiments at transmutation, and means, if his life is spared, to try them again—how can we be surprised at the popular story of 1861, that Louis Napoleon has established a gold-factory and is glutting the mints of Europe with bullion of his own making?"

As we write there lies at our elbow a curious book from the pen of Dr. Louis Figuier, "Agrégé de chimie à l'Ecole de Pharmacie de Paris." The title of this book runs thus: "*L'Alchimie et les Alchimistes; Essai historique et critique sur la Philosophie hermétique.*" From its concluding pages we learn that seve-

<sup>1</sup> "Occasio enim præceps est propter artis materiam, dico autem corpus, quod continue fluit et momento temporis transmutatur."—GALEN, Com. in Aphorism. Hippoc I. 1.

ral memoirs were read in 1853 and 1854 before the Academy of Sciences, of Paris, the object of which was to show that "*les métaux ne sont pas des corps simples, mais bien des corps composés,*" and that "*la production artificielle des métaux précieux est possible, est un fait avéré.*" The author of these memoirs is O. Théodore Tiffereau, "ancien élève et préparateur de chimie à l'école préparatoire de Nantes," who boldly said to the Academy "*J'ai découvert le moyen de produire de l'or artificiel, j'ai fait de l'or,*" and endeavoured, by a series of experiments, to convince his hearers that he spoke the truth, and was deceiving neither himself nor them. When the artificial production of gold is thus gravely announced at a sitting of the world-renowned Parisian Academy, as an accomplished fact, we need not, indeed, be surprised at the story of Louis Napoleon's gold-factory.

As we follow Dr. Holmes through his "Border Lines," we meet with passages, here and there, which we are strongly tempted to transfer to our pages. The following passing thrust at the quasi-science, phrenology, aptly illustrates the racy style in which the whole lecture is written:—

"By the manner in which I spoke of the brain, you will see that I am obliged to leave phrenology *sub Jove*—out in the cold—as not one of the household of science. I am not one of its haters; on the contrary, I am grateful for the incidental good it has done. I love to amuse myself in its plaster Golgothas, and listen to the glib professor, as he discovers by his manipulations

'All that disgraced my betters met in me.'

I loved of old to see square-headed, heavy-jawed Spurzheim make a brain flower out into a corolla of marrowy filaments, as Vieussens had done before him, and to hear the dry-fibred but human-hearted George Combe teach good sense under the disguise of his equivocal system. But the pseudo-sciences, phrenology and the rest, seem to me only appeals to weak minds and the weak points of strong ones. There is a *pica* or false appetite in many intelligences; they take to odd fancies in place of wholesome truth, as girls gnaw at chalk and charcoal. Phrenology juggles with nature. It is so adjusted as to soak up all evidence that helps it, and shed all that harms it. It crawls forward in all weathers, like Richard Edgeworth's hygrometer. It does not stand at the boundary of our ignorance, it seems to me, but is one of the will-o'-the-wisps of its undisputed central domain of bog and quicksand. Yet I should not have devoted so many words to it, did I not recognize the light it has thrown on human actions by its study of congenital organic tendencies. Its maps of the surface of the head are, I feel sure, founded on a delusion, but its studies of individual character are always interesting and instructive."

Of homœopathy, he writes:—

"It has unquestionably helped to teach wise people that nature heals most diseases without help from pharmaceutic art, but it continues to persuade fools that art can arrest them all with its specifics."

And again, in reference to changes in medical opinion and practice:—

"The practice of medicine has undergone great changes within the period of my own observation. Venesection, for instance, has so far gone out of fashion, that, as I am told by residents of the New York, Bellevue, and the Massachusetts General Hospitals, it is almost obsolete in these institutions, at least in medical practice.<sup>1</sup> The old Brunonian stimulating treatment has come into vogue again in the practice of Dr. Todd and his followers. The compounds of mercury have yielded their place as drugs of all work, and specifics for that very frequent subjective complaint, *nescio quid faciam*—to compounds of iodine.<sup>2</sup> Opium is believed in, and quinine, and 'rum,' using that expressive monosyllable

<sup>1</sup> A similar change has taken place also in English surgical practice. Sir W. Napier speaks of "that inveterate use of the lancet, which disgraced the surgery of the times"—the early years of this century. *Life and Opinions of Sir Charles James Napier* (London, 1857), vol. i. p. 153.

<sup>2</sup> Sir Astley Cooper has the boldness—or honesty—to speak of medicines which "are given as much to assist the medical man as his patient." *Lectures* (London, 1832), p. 14.



to mean all alcoholic cordials. If Molière were writing now, instead of *saigner, purgare*, and the other, he would be more like to say, *Stimulare, opium, dare et potassio-iodizare*.

"What is the meaning of these perpetual changes and conflicts of medical opinion and practice, from an early antiquity to our own time? Simply this: all 'methods' of treatment end in disappointment of those extravagant expectations which men are wont to entertain of medical art. The bills of mortality are more obviously affected by drainage, than by this or that method of practice. The insurance companies do not commonly charge a different percentage on the lives of the patients of this or that physician. In the course of a generation, more or less, physicians themselves are liable to get tired of a practice which has so little effect upon the average movement of vital decomposition. Then they are ready for a change, even if it were back again to a method which has already been tried, and found wanting.

"Our practitioners, or many of them, have got back to the ways of old Dr. Samuel Danforth, who, as it is well known, had strong objections to the use of the lancet. By and by a new reputation will be made by some discontented practitioner, who, tired of seeing patients die with their skins full of whiskey and their brains muddy with opium, returns to a bold antiphlogistic treatment, and has the luck to see a few patients of note get well under it. So of the remedies which have gone out of fashion and been superseded by others. It can hardly be doubted that they will come into vogue again, more or less extensively, under the influence of that irresistible demand for change just referred to.

"Then will come the usual talk about a change in the character of disease, which has about as much meaning as that concerning 'old-fashioned snow-storms.' 'Epidemic constitutions' of disease mean something, no doubt; a great deal as applied to malarious affections; but that the whole type of diseases undergoes such changes that the practice must be reversed from depleting to stimulating, and *vice versa*, is much less likely than that the methods of treatment go out of fashion and come in again."

In these very positive assertions of our author, error and truth, we think, are mingled together. That much mischief has resulted from the blind and overweening confidence of this or that physician in such a drug, or such a method of medication, cannot be gainsaid, but that the great radical changes which medical treatment in certain classes of disease has undergone from time to time, is the result merely of fashion or the caprice of practitioners of medicine, is wholly inadmissible. Such an opinion is in itself an insult, not merely to the therapeutic skill, but also to the good sense and integrity of every physician who follows his noble calling as a conscientious man, and an earnest and enlightened student. The professed wit will sacrifice his best friend rather than forego the utterance of a jest. Here and there in the writings of our author, the evidence is patent that the opportunity to enunciate some brilliant expression or mirth-provoking comparison, has overcome the dictum of sober judgment, and ignored the very facts which falsify the witticism. When Dr. Holmes tells us that the "usual talk" about a change in the character of disease has as much meaning as that concerning "old-fashioned snow-storms," he is doubly unfortunate, inasmuch as the facts of the historical record, relating both to disease and climate, are all against him. Let him refer, on the one hand, to the chapter on physical climate, in Milner's "Gallery of Nature," and on the other, to the closing chapters of Dr. Edward Smith's admirable and original treatise on "Health and Disease," noticed by us in the preceding number of this journal. Other works, bearing upon this subject, we might readily cite, but the two mentioned are just at hand, and they contain facts and arguments sufficient to refute the idea so lightly, and, must we say it, so thoughtlessly advanced by our author.

As an eminent medical teacher occupying a high position, and as a writer of great ability and weight, Dr. Holmes should, as he is well able to do, supply his hearers with the good and wholesome wheat of science from which the chaff of error has been carefully and patiently winnowed.

J. A. M.

ART. XXIII.—*The Sanitary Condition of the Army of the United States.* By EDWARD JARVIS, M. D., of Dorchester, Mass. 8vo. pp. 36. From the Atlantic Monthly for October, 1862.

THE efficiency of an army in the field will depend as much upon the health, bodily vigour, and vital energy of the soldiery composing it, as upon the excellency of its discipline, the correctness of its drill, and the military capacity of its officers. Hence, in order to have a strong and effective army, ready at any moment to accomplish whatever enterprise it may be employed to execute, it is not only requisite that it be composed of a sufficient number of men, but, also, that each one of these possess in himself the largest amount of force, and vigour, and energy, based upon the most perfect health, of which the human organism is capable. This fact is to be kept steadily in view in the very first steps taken for the formation of an army. The men who are to compose it should all be picked men: selected from out the community because of their particular adaptedness for the business of war. The army will then be made up, in the first instance, of a soldiery in the fulness of strength and efficiency. It will commence with the possession of a much higher average of health and vigour, a far greater power of endurance, of activity, and of resistance to the ordinary causes of disease than is to be found in the mass of men of the same ages in civil life. Now, it is not only necessary that the army should possess, at its organization, this fulness of health and efficiency of power in those who compose it, but that this very state of things be sustained, as far as it is possible, during the entire period it remains in commission—at all times and in all places, throughout weeks and months of labour and privation—in the face of all the numerous causes which are continually in action to cause a deterioration of the bodily force and vigour—a prostration of the strength, and energy, and capacity for endurance of the soldier in actual service.

Admit the truth of the foregoing positions, and their truth is almost self-evident, and we can readily perceive the immense importance of an intimate acquaintance, on the part of the army surgeon, with sanitary science, in its application to the condition of the soldier in time of peace, in camp, or upon the field of battle; that he knows what to do and how to act in order that the entire army may be placed, so far as is practicable, under the circumstances which are best adapted to keep up the necessary fund of vital stamina and activity in the soldiery who compose it.

The hygiene of an army, especially when in the field, differs in many respects from the hygiene of civil life. The soldier is liable to the influence of most, if not all, of those causes of vital depression and disease which threaten the civilian, requiring in the former, as in the latter, to maintain the full standard of health and vigour, the same attention to the air he breathes, the food he eats, the water he drinks, the clothes he wears; the same attention to cleanliness, personal and domestic, and to the means of shelter from cold and excessive heat, the rays of the summer's sun and the wintry storm. In addition to these, however, the soldier is exposed to other morbid and depressive influences peculiar to military life, or consequent upon the change in his habits and modes of life caused by his leaving domestic comforts for the discomforts of the tent, the march, and the bivouac.

"The business of war is not," as Dr. Jarvis very correctly remarks, "constant and permanent, like the pursuits of peace. It, therefore, comes to most managers as a new and unfamiliar work, to which they can bring little or no acquaintance from experience. They enter upon untried ground with imperfect knowledge of its responsibilities and dangers, and inadequate conceptions of the materials and powers with which they are to operate. They, therefore, make many, and some very grave mistakes, every one of which, in its due proportion, is doubly paid for, in drafts on the nation's treasury and on the soldier's vital capital, neither of which is ever dishonoured.

"Military life is equally new to the soldier, for which none of his previous education or experience has fitted him. He has had his mother, wife, sister,



or other housekeeper, trained and appointed for the purpose, to look after his nutrition, his clothing, his personal comfort, and, consequently, his health. These do not come without thought and labour. The domestic administration of the household and the care of its members require as much talent, intelligence, and discipline as any of the ordinary occupations of men. Throughout the civilized world, this responsibility and the labour necessary for its fulfilment absorb a large portion of the mental and physical power of women.

"When the new recruit enters the army, he leaves all this care and protection behind, but finds no substitute, no compensation for its loss in his new position. The government supposes either that this is all unnecessary, or that the man in arms has an inspired capacity or an instinctive aptitude for self-care as well as for labour, and that he can generate and sustain physical force as well as expend it. But he is no more fitted for this, by his previous training and habits, than his mother and wife are for making shoes or building houses by theirs. Nevertheless, he is thrown upon his own resources to do what he may for himself. The army regulations of the United States say: 'Soldiers are expected to preserve, distribute, and cook their own subsistence;' and most other governments require the same of their men. Washing, mending, sweeping, all manner of cleansing, arrangement and care of whatever pertains to clothing and house-keeping, come under the same law of proscription or necessity. The soldier must do those things, or they will be left undone. He who has never arranged, cared for, or cooked his own or any other food; who has never washed, mended, or swept, is expected to understand and is required to do these for himself, or suffer the consequences of neglect. The want of knowledge and training for these purposes makes the soldier a bad cook as well as an indiscreet, negligent, and often a slovenly self-manager, and consequently his nutrition and his personal and domestic habits are neither so healthful nor so invigorating as those of men in civil life; but the government neither thinks of this deficiency nor provides for it by furnishing instruction in regard to this new responsibility and these new duties, nor does it exercise a rigid watchfulness over the habits of the soldier to compel them to be as good and as healthful as they may be."

Independently of the large amount of actual disease and of mortality to which armies are liable, altogether distinct from the suffering, decrepitude, and death caused by the wounds inflicted by the weapons of the enemy, and are incurred alike by the soldier in barracks, in cantonment, and in encampment, and are as certain to be met with, though never, it is true, to the same extent in times of peace as in those of war—the constitutional vigour, the vital force, the power of endurance and resistance of the soldier, are liable to become depressed during periods of actual service, and from causes against which it is not always possible to guard. Among these causes we may enumerate the want of a regular and adequate supply of nutritious and easily digested food, excessive fatigue, interruption of regular nightly repose, exposure without adequate protection to cold, heat, and wet, and often to malarious influences, with numerous other privations, hardships, and discomforts almost unknown in civil life.

Much of the disease and death incident to the military life, and which always reduce to a great extent the efficient forces of an army—causing on the part of the government heavy expenditures, and repeated drafts upon the bone and sinew—the labouring muscles of the community, in order to keep up the forces on guard and in the field to their requisite strength, is, no doubt, due in great measure to preventable causes. Hence, everything which has a tendency to maintain and improve the sanitary condition of an army, whether in peace or during war, demands the serious consideration of the community, of the government, and, especially, of the medical and other officers having the immediate health of the soldiery in their charge.

From what has been already accomplished towards sustaining and improving the vigour, health, and vital energy of the soldier, it is very evident that, as the sanitary laws of the human organism become better understood and the means for their practical application more fully developed and enforced, many of the diseases which are now considered as in some degree the necessary evils of military life, may be effectually prevented.

The sanitary condition of the present army of the United States, it is con-



fessed, is more favourable than that of any army of former times or of other nations. It is possible, we think, to raise it in this respect to a still more favourable grade—to reduce still further the danger of sickness and mortality in our soldiers, to bring it to a still nearer approximation to what it is among men of the same age and stamina of constitution in civil life. There is no reason whatever why in a time of peace the health of the soldier should be less secure, or his life in greater danger, than is the case in the best class of his fellow-citizens at home. Even during a period of actual service much may be done towards improving the sanitary condition of the army by placing it under the care of surgeons well versed in the science of health, and invested with sufficient executive authority to have executed promptly whatever they may deem necessary for sustaining the health and vigour of the soldiery, so far as these measures can be carried out without interfering with any important military movement.

The essay of Dr. Jarvis is one adapted to interest and instruct all who feel any interest in the well-being and efficiency of our army. It presents a series of reliable statistics drawn, as far as possible, from official reports in reference to the ratio of sickness and mortality of military bodies in peace and war compared with the ratio in civil life—and the source and extent of the disease, resulting in invaliding or death, to which they are liable. He examines in detail the supposed danger to the soldier; the sickness and mortality in civil life, compared with the sickness and mortality of the army in peace and in war; comparing the condition, in this respect, of the armies of the United States in the war of 1812–14, for the conquest of Mexico, and during the existing rebellion, with that of the different armies of Europe. The dangers incident to battles upon land and at sea; the want of sanitary preparations for war are inquired into, and the difference between the conditions of civil and military life pointed out. The errors committed by government in respect to its ministrations for the protection of the health of the army and their effects are considered, and a general notice given of the results of the sanitary reforms already accomplished.

The subjects of which the author treats, it is evident, are throughout well selected; all his facts are aptly chosen and carefully arranged and collated; while his general conclusions are fairly deducible from his premises.

D. F. C.

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ART. XXIV.—*Dentition and its Derangements. A Course of Lectures delivered in the New York Medical College.* By A. JACOBI, M.D., Professor of Infantile Pathology and Therapeutics, etc. 12mo. pp. 172. New York: 1862. Baillière Brothers.

THE leading object of Dr. Jacobi in this little volume of lectures, is to prove that dentition, which is a purely physiological process, has been unjustly accused of being the cause of the various morbid phenomena which so frequently occur in conjunction with it. The several morbid conditions so frequently observed during the period of teething, according to Dr. Jacobi, have an origin altogether independent of the act of dentition. In the establishment of this thesis he is necessarily led into an examination of the pathology of the more prominent ailments of infancy and childhood.

Although we cannot say that we are entirely convinced of the accuracy of all the teachings of our author, we nevertheless have been particularly interested in the perusal of his lectures—as well those which discuss the physiological history of the process of dentition, as the series especially devoted to a consideration of the nature and etiology of the affections which usually occur in conjunction with the cutting of the teeth.

It is very evident that the formation, development, and protrusion through the gums of the teeth, are purely physiological acts, and, like all other normal acts of the living organism, are performed, in the healthy subject, without pain, inconvenience, or disturbance of any kind. That, however, in children who are

morbidly excitable—who are badly nourished, and exposed to bad hygienic conditions generally, who are, from any cause, strongly predisposed to the occurrence of morbid action, the process of dentition may become the exciting cause of disease of a most serious character. is so well established by the repeated observations of the physicians of all times and all places, that the fact cannot be gainsaid. That the strictly physiological actions of either of the organs will, under certain predispositions to disease, whether in the system at large, or in the organ itself, give rise to pathological results, is a well established observation; so, also, in respect to dentition, though, under conditions strictly normal, it is accomplished without suffering or disturbance in any portion of the system, it is very certain that, when there is present a proneness to disease, teething is often attended by morbid phenomena, more or less intense—and thus may become the exciting cause of some serious malady.

It is unquestionably true that a large number, we would say the greater majority of infants cut their teeth without any bad symptoms—it is equally true that the morbid phenomena which may be observed to precede or accompany the protrusion of the teeth, are not in every case dependent directly or remotely upon the process of dentition, but that their causes are to be sought for in a predisposition dependent upon the age of the infant, and the peculiar physiological condition then present—the normal predominance of activity in certain of the vital functions, while their production is directly traceable to errors in feeding, deficient personal cleanliness, impure air, defective ventilation, want of due exercise, accidental injuries, and the like. It is not the less true, however, that the morbid phenomena referred to are very generally aggravated by dentition, while the latter, as already remarked, may become the sole exciting cause whenever there exists an abnormal predisposition to morbid action in one or other of the organs. Dentition will also be attended with more or less suffering in those instances in which the evolution of several of the teeth takes place simultaneously or in quick succession, or where there is a deficient development of the jaws.

The foregoing positions will, we are confident, be found fully established by the experience of every observing physician. It is very certain that in the lectures before us nothing has been adduced which in the slightest degree tends to show their inaccuracy. The entire chain of reasoning by which Dr. Jacobi has endeavoured to show that in our estimate of the etiology of the diseases of infancy the action of dentition must be entirely omitted is particularly specious and inconclusive. We do not, however, wish to be understood as including in one general condemnation the lectures before us. On the contrary they are replete with important truths, well set forth, and adapted to remove many errors into which physicians have fallen in respect to the maladies of infant life and their relationship to dentition. The study of these lectures will be found profitable to every one engaged in the practice of medicine. If their publication should do no other good than to put a stop to the unnecessary, often injurious, cutting and hacking of the gums of the infant, which is every day performed, and often repeated several times, at short intervals, in the same subject, under the pretence of favouring by it a more easy and rapid protrusion of the teeth, and in this manner guarding against the occurrence of disease, or facilitating the removal of this when it has already made its appearance, they will have answered an excellent purpose.

"I see few indications," Dr. Jacobi remarks, "for the lancet during the period of dentition. You may cut where the gums are an impediment to the protrusion of a tooth, or where the gums themselves are the seat of a disease giving rise to general symptoms, especially of the nervous system. Thus, inflammation of the gums justifies an incision for the sake of relieving the tension of the tissue. Even mild cases in very irritable children may be treated in the same way. But the incision, especially when repeated, may itself become a cause of irritation, sometimes evidenced by the fact that during the prevalence of follicular or other form of stomatitis the gums will be found covered with superficial ulcerations. I need not add, that while exudative processes, such as diphtheria, are active in the system, every wound inflicted will give rise to new diphtheritic deposits. I, then, scarify the gums in cases of intense local hyperemia and inflammation—where the loss of a few drops of blood, which can have no effect on either the



healthy or diseased general system, is decidedly advantageous. I should scarcely in cases of convulsions in tender, irritable patients, in whom I found the gums swollen, and where a correct diagnosis could be made instantaneously—especially in such as had been once relieved by the same operation: for I must confess that once or twice in my life, not ~~at~~ <sup>the</sup> tender, I have observed the instant termination of an attack of convulsions after I had lanced the gums. But always be sure that the tooth is near the surface. I know that new cicatrices will easily tear, but old ones will not, and I have seen trouble to arise from teeth which were cut down upon weeks or months before they were ready to pierce the gums; a practice always annoying to the child, and useless or even dangerous, and certainly not indicative of much power of diagnosis or therapeutical knowledge in the doctor. It is not uncommon, even, to find a retardation of the protrusion of a tooth when you expected it daily to appear. A child becomes sick, with symptoms of fever and others of a local character; you lance the gums, and not only expect the appearance of the tooth, but a termination, also, of the untoward symptoms. Nothing of the kind occurs. On the contrary, the child gets thinner and sicker, and yet no tooth. Where the system is intensely suffering, where emaciation takes place and nutrition is interfered with, it is but natural that the growth of a tooth should also stop. In such cases you may safely predict that no tooth will appear before the child gets well, or, at least, better. During convalescence the tooth appears. It made its appearance after the organism had been sufficiently restored to allow of phosphate of lime being spared for the building of teeth, but the mother says, that, because the child was well when the tooth came, therefore, the child suffered from its tooth."

"In one of my first lectures, I spoke of the direct injury done to the tooth by incisions. The consistency of the tooth is the less the younger the child; and that harm may be done to a tooth by the action of a hard, sharp instrument cannot be denied. If you expect to effect anything by an incision, you must be sure to divide the gum down to the tooth. But you can scarcely avoid injuring the tooth in cutting down upon it. If this danger exists, and it certainly does, it is the more to be feared from those often repeated scarifications recommended by Marshall Hall, and others. Thus, while your incisions are of no use in the present, they are positively injurious in the future."

There is much sound practical sense in the foregoing remarks—all may profit by them.

We agree very fully with the remarks made by Dr. Jacobi in reference to the leading diseases of the mouth, their etiology and pathology, and their relation to dentition, which in the great majority of cases is merely that of coincidence.

The author's account of retro- or latero-pharyngeal abscess is particularly interesting. He describes it as one of the sequelæ of ordinary pharyngitis. It is attended with rather severe pain, and considerable exudation. A semi-spherical, livid, brilliant tumour being seen or felt on the posterior or lateral wall of the pharynx. Respiration and deglutition are difficult—there is cough, with thickness or hoarseness of voice—emaciation—high fever, sometimes attended with convulsions, which may also be induced by the swelling of the tissues of the neck, and the consequent compression of the venous trunks. The abscess generally forms pretty slowly, and in this may sometimes be distinguished from acute tonsillitis or stenotic disease of the larynx. If the contents of the abscess be evacuated by an incision or spontaneous rupture, the danger of suffocation is removed, and soon all severe symptoms will disappear. The spontaneous evacuation of the pus is not to be depended on; in the majority of cases an incision will be necessary. There is imminent danger of suffocation from the mere size of the abscess, and the attendant swelling of the surrounding tissue, especially the velum palati and posterior nares. Danger may also arise from the extension of disease to the larynx, increasing thus the liability to suffocation, or from the occurrence of grave consecutive diseases, or the Eustachian tube may become affected, and impairment of hearing or total deafness ensue. The danger from the impairment of deglutition is less imminent, want of food can be endured longer than the want of air, while food can be introduced in case of necessity by other avenues than the mouth and œsophagus.

Retro-pharyngeal abscess is seated in the cellular tissue interposed between



the pharynx and vertebral column. The lecturer divides these abscesses into three classes: 1st. The idiopathic, resulting from simple inflammation of the mouth, pharynx, and surrounding tissues, or a metastatic process connected with an acute exanthem, typhoid fever, or pyæmia. The majority of cases occur before or during the first dentition—this period of infancy being that in which there is the greatest tendency to catarrhal affections of the throat. The prognosis is generally favourable if incision of the abscess be not neglected. Metastatic abscesses, however, are of a more dangerous character, being merely the symptoms of a more or less grave affection of the general system. Idiopathic abscesses require in their first stage a rational antiphlogistic local treatment. Cold applied both internally and externally; the first by the slowly swallowing of ice, or gargling with iced water, with or without the addition of alum; the local application of nitrate of silver, or alum, scarifications of the larynx, leeches. When suppuration cannot be prevented, warm poultices are to be resorted to, excepting when there is danger from cerebral congestion; here warm emollient gargles are to be preferred. Internal treatment is available only so far as it is adapted to diminish fever or other dangerous symptoms. When the danger of suffocation is imminent, the abscess should be opened at once by incision and its cavity washed out by gargling or syringing with water, but in the case of what are termed metastatic abscesses, to promote their healing the application of stimulants and astringents is required—such as chlorate of lime, alum, nitrate of silver, tannic acid, while the proper internal treatment must be determined by the nature of the general affection. Bark, and the mineral acids will generally be indicated.

The second form of retro-pharyngeal abscess includes such as result from the suppuration (usually in scrofulous subjects) of inflamed lymphatic glands and the surrounding tissues. They are rarely met with previously to the completion of the period of the first dentition. The prognosis is in general sufficiently favourable, provided the original suppuration is not excessive and the general morbid condition of the system is moderate in extent. The local treatment will be much the same as in the case of idiopathic abscess. The primary attention is to be paid, however, to the original glandular abscess, the pus of which may often be evacuated by an incision from without, with the effect, also, of relieving the consecutive pharyngeal and laryngeal injection. The gravity of the general dyscratic affection calls for serious consideration. The employment of the iodides of potassium and of iron, cod-liver oil, pure air, sufficient exercise, attention to the skin, and a generous diet, will be strongly indicated.

A third form of retro-pharyngeal abscess is dependent upon suppuration seated in the cervical vertebræ or their ligaments, occurring at a period of life earlier than the preceding form. The prognosis in these cases is very unfavourable. The opening of the abscess should be deferred as long as possible; it can only afford temporary relief to the difficulty of respiration and deglutition. The treatment must be by quietude, posture, cold applications, leeches, mercury and wine, nitrate of potassa, tartar emetic, iodide of potassium, and preparations of iron, according to the indications presented in each case. Little dependence, however, is to be placed in any course of treatment, as the disease will in nearly every case terminate fatally, either very suddenly or after the gradual occurrence of great exhaustion attended with hectic fever. Dr. Jacobi knew of one case, occurring in a young man, to terminate suddenly while the patient was in the act of turning his head on the pillow. Examination after death showed the ligaments of the spinal column at its upper portion to be destroyed to within a few shreds, which were torn by the last movement of the patient, allowing the process of the vertebra dentata to enter the foramen magnum and destroy the tissue of the medulla oblongata.

There is scarcely a lecture in the volume before us which does not present matter worthy of especial notice. The entire validity of the views presented by the author in respect to the nature, seat, and causation of the several infantile diseases of which he treats we may not, it is true, be able always to acknowledge; the facts and arguments, nevertheless, by which he has endeavoured to enforce and illustrate them are always deserving of a candid examination, and in many instances they are, it must be admitted, particularly suggestive. We should be

pleased, could we spare the space, to present an analysis of the greater portion of those of the lectures which are of a strictly pathological character.

Dr. Jacobi's exposition of the nature and causation of infantile convulsions are particularly interesting; we shall confine our notice, however, to his account of laryngismus stridulus or the crowing inspiration of children.

The first stage of this affection he refers to the sudden occurrence of complete apnœa. Respiration is suddenly and completely arrested for some seconds; the face becomes bloodless and pale, and, finally, cyanotic, if the paroxysm is of any duration. The skin is cool, and the action of the heart scarcely perceptible, the entire muscular system being, according to Dr. Jacobi, in a state of paralysis. In the second stage he supposes that reaction commences. The recurrent branch of the pneumogastric nerve excites the function of the muscles of the glottis, and the spinal nerves that of the other respiratory muscles, so as to cause a forced, deep "crowing" inspiration. During the third stage reaction becomes complete. By short convulsive expirations the functions of the respiratory organs are restored to their normal condition. Attacks of great intensity and long continuance are commonly attended with contractions of the hands, and even general tonic convulsions of the trunk and lower extremities. In some cases general eclampsia has been known to accompany the attack, but to return without any recurrence of the latter; or the laryngismus may recur without the eclampsia. Involuntary evacuations, caused, as Dr. Jacobi supposes, by paralysis of the sphincter muscles, have been observed during the attack. The paroxysms of laryngismus recur at longer or shorter intervals; several may take place in a single day. The disease is seldom fatal. It may last for months and even years. When death ensues during the attack it is in the first stage.

The mildness or severity of the attacks of laryngismus depend as well upon the constitution of the patient as upon the nature of the occasional causes.

Dr. Jacobi believes that the symptoms of the first stage of this affection can only be explained by supposing a functional disturbance of the nervous system—paralysis, perhaps, of the medulla oblongata, or of the nervous centres generally. Paralysis of the muscles of the glottis alone, he remarks, would not be sufficient to produce all the symptoms of the first stage of laryngismus; these do not occur upon the division of a recurrent nerve. The division of both nerves gives rise pretty rapidly to suffocation, but not suddenly, while the lungs and brain become engorged, whereas the morbid anatomy of laryngitis shows entire absence of hyperæmia of the brain, and little or no blood in the heart and cutaneous veins. Death in laryngismus, according to Dr. J., ensues precisely in the same manner as it does in animals in whom the medulla oblongata has been divided.

The crowing inspiration is very correctly described as a symptom which does not exclusively appertain to laryngismus stridulus; it is met with also in laryngeal catarrh, in which disease the muscles of the vocal cords are spasmodically affected.

We agree fully with our author in the remark that the cause of laryngismus is to be sought for in some affection of the nervous centres. It is very evident that no disease of any portion of the respiratory organs is attended by symptoms similar to those which characterize laryngismus, and in the examination of the bodies of those who have fallen victims to it no lesions of the heart and lungs sufficient to explain its production have been detected. Goelis long ago noticed the occurrence of a mild form of laryngismus in connection with chronic hydrocephalus. Keitel found, besides a hypertrophied and degenerated thymus gland, softness of the skull, with large fontanels and sutures, a softened and hyperæmic condition of the cerebral tissues, with softness of the medulla oblongata and congestion of its membranes, and a tablespoonful of clear serum at the upper portion of the vertebral canal. In one case Marshall Hall found abnormal hardness of the medulla oblongata. Evans relates that, in a child with congenital spina bifida, an attack of laryngismus was produced whenever the fluid in the sac was pressed into the vertebral canal. Caspari found the substance of the spinal cord solid and white, with considerable injection of its dura mater. The sinuses of the brain were enormously distended with thin black-coloured



blood, and the substance of both cerebral hemispheres and of the cerebellum very soft. The phrenic nerves were unusually hard, while the pneumogastric nerve "appeared more similar to the brain." Facts of this kind could be greatly multiplied, showing the dependence, in a large number of instances, of laryngismus upon lesions of the nervous centres. It is to be recollected, however, that diseased conditions of the brain and medulla oblongata, precisely similar to those met with in patients who have perished from an attack of laryngismus, frequently occur without the occurrence of any symptom, even the slightest, of the latter. We believe that, in every instance, laryngismus is strictly a nervous affection, dependent, in very many cases, on disease of the nervous centres, but more frequently upon reflex irritations having their origin in some morbid condition of remote organs. We cannot admit, however, that the condition of the nervous centres giving rise to laryngismus is, as Dr. Jacobi supposes, that of paralysis; we can find nothing in the symptoms, course, and termination of the disease that would seem to indicate the presence of paralysis of certain of the respiratory muscles, but rather in every case their spastic contraction.

There is a morbid condition met with during infancy which, according to our author, is a very fruitful cause of laryngismus; that is, a rachital softening of the parietal and occipital bones, but especially of the latter, to which the term *craniotabes* has been applied. Kopp, Caspari, Pagenstecher, Hirsch, Keitel, Hachman, Günther, Landsberg, Hauff, Staub, and other of the old writers collected by Elsaesser in his work on the "*Soft Occiput*," without recognizing the intimate connection of the two morbid conditions, have described cases of laryngismus in which softening of the parietal and occipital bones constituted one of the most prominent lesions. It is very certain, however, that after the most careful analysis of the observations on record in respect to rachital softening of the cranium, that laryngismus will occur in numerous instances where there does not exist a trace of *craniotabes*. Dr. Jacobi says:—

"I hardly remember a case of my own, in which symptoms of general rhachitis and of rachidial softening of the cranium were absent in laryngismus; this much is certain, that the majority of cases of laryngismus or crowing inspiration, depend on *craniotabes* and general rhachitis. It is always the great predisposing cause, and thus, the last and proximate causes of an attack of our disease, as we find them enumerated in the text-books—such as fright, anger, cough, protrusion of a tooth, etc., are assigned their right place of but occasional and temporary importance. By the defective condition of the cranium the brain is more liable to external injuries from concussion caused by quick movements of the head, or an improper mode of carrying on the arm, violent rocking, etc.—from lying on too hard a pillow, from too high a temperature both artificial and solar, and, finally, we must not overlook the importance of such alterations as invariably take place, in rhachitis and *craniotabes*, in the nutrition of the system and the condition of the brain. At all events you will hardly ever be mistaken in your etiology, when on meeting with a case of laryngismus, you examine for *craniotabes*. Whenever a child with laryngismus is brought to me, my first attention is given to the occiput and epiphyses, as my first prescription is almost invariably the regulation of the diet and the use of iron."

Our experience in respect to the frequency of the connection between laryngismus and a rachitic condition of the infantile system, with softening and wasting of the cranial bones, differs from that of Dr. Jacobi. We have certainly observed laryngismus to occur often in rickety children, but more frequently in those in whom no trace of a rachitic taint was to be detected. The infants most liable to it are, according to our experience, pale and anæmic, excitable and fretful, who awaken, as it were, in a fright upon the slightest noises made in their vicinity, and who are wakeful, restless, and unsatisfied unless constantly on the move.

The most frequent exciting causes we should say, are sudden and abrupt movements of the child, especially any undue jolting of the head and body, improper food, and an impure, stagnant, or irritating condition of atmosphere. Among these the most effective in the production of laryngismus are the improper quality of the infant's food, and its exposure to malarious influences.

This fact, which is recognized by the major portion of the more recent



English and French writers on the disease, it is important to keep constantly in mind, inasmuch as, in a very large number of cases, it is in vain to attempt the arrest of laryngitis by any course of treatment until the little patient is put upon a proper and well regulated diet, and subjected to the influence of a free, pure atmosphere of suitable temperature. This alone we have often known to suspend the paroxysms, which had previously been of frequent occurrence.

Although laryngismus is a disease of the period of infant life, during which the process of teething is most active, we have no reason for supposing that the latter is a very common exciting cause of it; when, however, the gum over the advancing teeth is greatly swollen, hard and red, the mouth is hot, and the child evidently suffers pain in its mouth, a careful incision of the gum is equally advisable in children labouring under laryngismus as it would be under any other circumstances.

We earnestly commend the lectures of Dr. Jacobi to the favourable consideration of the profession at large. They are replete with instruction in relation to many important points connected with infantile pathology which are not well understood by a large number of practitioners. The author has done ample justice to his subject and its literature, whether the lectures are viewed simply as presenting an exposition of the physiology of dentition and its derangements, or as a general review of the nature, seat, and causes of those diseases which are usually observed during the period of dentition. His object is evidently the attainment of correct views in respect, more especially, to the etiology of the maladies just referred to, and although he may, perchance, have ignored to too great an extent the influence of dentition in their production, his teachings cannot fail to have the beneficial effect of directing the medical practitioner to a recognition of the entire want of foundation for the common opinion so long entertained by the public as well as by the profession, everywhere, that teething is usually a painful process, and one of the most usual and efficient of the predisposing and exciting causes of the maladies of infancy. An opinion not simply unsupported by facts, but one adapted to cause, on the one hand, the true etiology of many important diseases to be overlooked; and on the other hand, to lead to the adoption of a practice always useless and often mischievous.

D. F. C.

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ART. XXV.—*Addresses delivered by Dr. BURROWS, Dr. WALSH, Mr. PAGET, and Dr. SHARPEY, at the Thirtieth Annual Meeting of the British Medical Association, held at the Royal College of Physicians, London, in 1862.* London, 1862. 12mo. pp. 98.

THE British Medical Association, it is well known, was formed several years ago by incorporating with the Provincial Medical Association the members of the medical profession in the metropolis. Its recent meeting, the first held in London, was remarkable for the large number of gentlemen who took part in its business, and for the character of the Addresses with which it was opened. These, which have been thought worthy of preservation in a separate form, are contained in the pamphlet before us.

The first of them, delivered by the President, Dr. Burrows, sets forth the grounds which have been made familiar to us in our own State Medical Societies and in the American Medical Association, and upon which the union of physicians for the diffusion of medical knowledge, and the maintenance of the honour and interests of the medical profession, are to be promoted and secured. In England, as at home, it has been found that the medical profession has profited by the existence of the Association in the development of new ardour in the pursuit of scientific discovery, in the improvement of practical medicine and surgery, and in the elevation of the professional status, while its influence upon the national legislature in favour of improved laws for the organization and government of the medical profession has been very salutary. Dr. Burrows sketches very appropriately the tendency of modern civilization to nationalize

all the agencies for intellectual, moral, and national advancement, by substituting for close corporations with exclusive privileges, institutions of a larger scope and a more catholic spirit. Fortunately, in some respects at least, this country was never afflicted by similar drags upon the advancement of the learned professions; while in France they have not existed since the national spirit of her people was fully aroused at the formation of her first republic. It is a gratifying spectacle to see the ancient institutions of science and learning in England yielding more and more to the necessity of opening the avenues of knowledge, and confessing that the gifts of genius and the fruits of scientific inquiry are to be sought quite as often beyond the limits of social and chartered orthodoxy as within them. It appears, however, that in England, as in this country, institutions are to be found which protest by their action against the more generous spirit which incites the profession, and which cling to the ancient paths with a tenacity which renders the purity of their motives suspicious. The orator admits, as has so often been confessed here, that to attempt the removal of such obstructions by legal methods would be injudicious; but he assures his hearers, in the same spirit that has animated American medical reformers, that "if the British Medical Association can, by its numbers and proceedings, carry public opinion along with it, then it has an intrinsic power, equal to any that could be granted by the legislature, and this moral power may be applied to the production of the most beneficial results."

The Address in medicine, by Dr. Walshe, is in every respect worthy of its author, and is beyond comparison the gem of the collection, whether in style, thought, or argument. Its object is stated to be an inquiry into the ultimate causes and the mechanism of the recent progress in medicine. The first of these causes, says Dr. Walshe, is an improved method in observing and recording medical facts. He shows how transitory and insufficient have been all conclusions in medicine which have had any less substantial basis, and defends from the sneers of superficial men that slow, toilsome, and ungrateful labour of collecting the materials upon which alone doctrines can securely rest. He contrasts the deductive with the inductive method, and shows that while the former is appropriate in certain departments of philosophy, it is misplaced in medicine, and has never given birth to any but a short-lived offspring, as most precocious children are who are the idols of their parents and the pests of all the world besides. "History," he remarks, "not only teaches us the absolute failure of all such systems, but shows that, so long as the deductive method prevailed, all progress must, if not solely, at least essentially, consist in the destruction of something gone before. The energies of genius must be wasted in negating the errors of the past." He might have enforced the doctrine of his theme by those striking lines of the philosopher-poet:—

"Gran Freund ist alle Theorie,  
Doch grün des Leben's goldner Baum."

On the subject of "pathological laws," Dr. Walshe has also much sound doctrine. He shows that such laws are not to be claimed as absolute, but only as formulæ expressing the actual state of positive knowledge, the results arrived at by the numerical analysis of accurately observed facts; results which may be more or less modified by the next fact which is added to the series, but which are, nevertheless, infinitely nearer the truth, than any which a different process can evolve. The author proceeds to show how completely the results obtained by this method have achieved the empire of the medical world, and reduced to mere nothingness the theoretical speculations of genius and the authority of mere names, when the one soars from clouds instead of solid earth, and the other usurps a control which is legitimate in nature alone. "No amount of past achievement in an investigator," he remarks, "no perfection of intellectual brilliancy in a teacher, no universality of belief in any particular man's endowments, no humility of 'hero worship,' will save any opinion, any creed, any statement of alleged facts from the critical revisal of the humblest and the newest worker in the field, or protect one or the other from inevitable destruction if that revisal detect a flaw."

Such a course of argument and such illustrations as Dr. Walshe uses to en-



force the leading principle of his discourse, we employed some twelve years ago in an essay on Medical Truth.' They had the honour of being pooh-poohed, at the time, by the leading British Medical Review; but as they had even then their advocates, and evidences of their soundness abounded on every side, we were content to await the verdict in their favour which time never fails to award to truth. We then cited the improvements in thoracic pathology due to Dr. Walshe as examples of the fruits which the numerical method of investigation had produced, and we are now doubly gratified in reading his own luminous and convincing exposition of the method itself. Its influence upon English and American medicine cannot be small when directed by so eminent a teacher; for while even truths divine are seldom heeded unless uttered by a voice potential, the dicta of authority find complacent listeners, and obtain a prompt conformity. Even now there are minds which chafe under the constraint of a method of investigation, which, as Bacon said of his own, "levels men's wits and leaves little to their superiority," and who, under the inspiration of an impetuous genius, have struck out theories which captivate the imagination and dazzle the calm and steady eye of reason herself. But these are only sparks and flashes which the ponderous chariot-wheels of truth strike out as she rides onward conquering and to conquer. They are only noisy bursts of vapour which admonish us of her progress, or, perchance, relieve the superabundant pressure which, but for them, might become dangerous to science itself.

In what Dr. Walshe says to indicate the true position of medicine among the sciences, we have, also, the satisfaction of knowing that we anticipated several of his arguments and illustrations, and set the same limits which he assigns to certainty in medicine, viz., that its truths apply to classes of facts alone, and not to individual instances. Hence, prognosis has ever been the most difficult part of medicine, the despair of the conscientious physician, and the quack's most fertile field; for the one knows that to foretell with certainty is impossible, and the other that a lucky guess will favour his fortune a thousand times more than a false prediction can injure it. But Dr. W. is not content with an affirmative vindication of the certainty of medicine; he not only rebukes the sneer which the members of other professions are apt to affect, or utter in ignorant sincerity, but he shows that the uncertainties in doctrine and practice which afflict medicine are neither greater nor more numerous than belong to every other department of human knowledge. He stigmatizes as it deserves the fact that a statistical investigation into the health of the British army, was intrusted to a captain in the service instead of a medical man. They manage these things better in France; and even among us, outer barbarians as our cousins across the water at present consider us, such an insult to the medical profession would have been impossible. He characterizes with equal plainness the attempt on the part of certain legal members of the legislature to exclude skilled medical opinion in cases of lunacy, for the reason that "the contradictions of medical experts *inter se* are so constant and so flagrant, that jurymen are likely rather to be led astray by the conflict of their opinions, than guided by the clearness of their technical knowledge." That this is a difficulty is not sought to be denied: "But the *onus probandi*, that this difficulty makes the chances of the jurymen failing to reach the right conclusion greater than it would be without such conflict of opinion, rests with those who oppose skilled testimony." And the critics of medical experts are reminded that just as great a conflict of testimony as to matters of fact of the most ordinary kind is daily to be observed, in witnesses whose intelligence and probity are irreproachable. "If the bar were logical," it is added, "they should then plead that witnesses as to matters of fact might henceforth be silenced," and that skilled opinion of every kind should be excluded from court, because engineers, and architects, and surveyors, and all other persons whatsoever, when summoned as experts, are quite as discordant in their opinions as physicians. But most of all is this discordance to be seen among lawyers themselves. The very business of their lives is to assert what others contradict, and to deny what others affirm. If it is said that they do so perfunctorily, and

<sup>1</sup> Elements of General Pathology, &c., Phila., 1848.



not as individuals, what must be thought of the notorious dissidence of opinions in judges upon the bench, whose very office is created to secure, if possible, the agreement of the weightiest authorities? A striking example is mentioned of this antagonism in the highest court of England, where, upon an important point of law, brought there by appeal from below, the thirteen judges differed in their decision as much as it was possible; six were in favour of and six against the defendant, and the case was only decided by the casting vote of the presiding judge. "And these are the men," exclaims Dr. Walshe, "who would silence medical opinion in courts of justice, on the plea that it is not consistent!"

He further contrasts the amount of knowledge required by physicians and lawyers; the latter dealing, in the main, with what they themselves manufacture, the former with the mysteries of nature; the one having to expound the works of man, the other to interpret the works of God. But because physicians, when called into court, often disagree in the interpretation of facts, lawyers would exclude them entirely. The Lord Chancellor himself denounces the idea that any one should "have studied medicine in order to determine whether a man was or was not a lunatic, as an *absurdity*!" Again, we must say, "they manage these things better in France," and we might add, in Germany; for in both of those countries the medical expert is an officer of the law, and his investigation of judicial questions within his province is conducted under the sanction of an oath and of his official responsibility.

We cannot follow Dr. Walshe in the concluding portion of his Address, which relates to the opinion of the lay world concerning the relationship of medicine to the general march of civilization. He shows that in this respect, medicine has not been justly dealt with, and especially in regard to the ardent love of truth and the zealous pursuit of it which has distinguished the cultivators of this science. Alone, of lay historians, he says, the late Mr. Buckle has even attempted to render our science and art the justice which they may claim, although he failed in his object because his powers of mind were essentially deductive and, therefore, inapt to comprehend a science which is purely inductive. We believe that the imperfect appreciation of medicine by historians arises from several causes, but chiefly from this that it directly acts on individuals and not on masses. The bulk of history is composed of politics and war, and its chief actors are statesmen and soldiers. It is not only a modern, but a very recent, innovation to introduce into general histories an account of the intellectual elements of civilization. Even literature and art, although so generally attractive, and possessing such splendid monuments to attest and chronicle their progress, have hitherto depended chiefly upon special histories for a record; and we cannot, therefore, complain that the share which the medical profession has had in civilizing mankind should have been usually overlooked by the historians of national advancement. Henceforth, the creative and preservative rather than the destructive powers will demand the chief attention of writers who propose to chronicle the development of national greatness, and among them it will be impossible to neglect the influence of medicine in all its branches, as one of the chief agencies employed to protect, perpetuate, and strengthen society.

Mr. Paget's Address on the Management of Patients after Surgical Operations has all the characteristics which eminently distinguish the works of English Surgeons, and which were so prominent in those of Sir Astley Cooper, and Sir B. Brodie. They may be comprised in two words, common sense. This national trait is one more apt to be displayed in surgery than in medicine; that is to say in material and mechanical procedures which are open to the senses in their operation and results, and rather than in the management of remedies, whose mode of action is doubtful, and is rendered doubly uncertain by the obscurity of the internal condition they are intended to cure. Here the faculties required are more generally the rational as distinguished from the instinctive; the questions to be solved often demand the highest powers of ratiocination for their solution. Doubtless, Mr. Paget is fully able to solve successfully the most intricate of these; but in the present instance he has confined himself almost exclusively to common and practical topics. While he urges the propriety of favouring union of wounds by the first intention, whenever the appropriate conditions for it exist, he dissuades from persisting too pertinaciously in the attempt, lest ery-

sipelas, purulent absorption, &c., may be favoured. Repose and cleanliness he aptly terms the two essentials of cure, but next to these is diet. Equally remote from incendiary methods and starvation plans, he counsels nutritious and varied food, according to the patient's taste and habits, and particularly inveighs against "the monotony of mutton." It is a judicious remark, that we are too apt to consider reaction after shock as a mark of disease, and as requiring a lowering treatment; whereas, he views this process as a proof of power in the constitution, and, therefore, not to be unduly interfered with. He does not, however, fail to speak of a reaction whose very violence depends upon weakness from anæmia, nervousness, exhaustion, &c., and which must be treated with stimulants, including opium, until the shock is passed. The mortality after operations appears to Mr. Paget to be very indeterminate, or rather undetermined, and particularly because care enough is not taken to discriminate between deaths caused by operations and those which follow operations and occur independently of them or in spite of them. By this way of reckoning the aggregate of deaths set to the account of operations would be very materially reduced; but if it could be honestly determined the interests of science and art would both be promoted. Mr. Paget lauds anæsthetics, and thinks that chloroform is unjustly charged with deaths which should be attributed to shock, even "after operations of no great severity." Unhappily the deaths from this agent are numerous in which no shock existed save that which the anæsthetic itself produced. He next, speaks of phlebitis, inflamed lymphatics, erysipelas, pyæmia, putrid infection, and tetanus, as influencing the result of operations. These affections depend upon the condition and actual morbid proclivities of the patients who are submitted to surgical operations, and their development is determined by the shock or other conditions of the operations performed. In reference to rigors which so generally usher in the secondary consequences of operations, he suggests that their explanation, which is acknowledged to be very difficult, may be sought in their analogy to convulsive affections. In support of this opinion he cites several cases in which epileptiform convulsions took the place of chill, and refers to the frequency with which such attacks usher in febrile affections, especially in children. But however caused, their origin, he maintains, is constitutional, and dependent, along with the conditions which they introduce, upon a morbid state of the blood and tissues; and he notices several among the forms and grades of traumatic pyæmia, some of which are rapidly fatal, with phenomena indicating a rapid and thorough disorganization of the circulating fluids, and others present various degrees of gravity from the severest to the most transient and slight. He very properly classes them with the true eruptive fevers, as blood diseases. As for the remedies for these fatal and troublesome affections, he acknowledges that although quinine will sometimes cut short the attack, he finds only one thing that he can call remedial for the whole disease, pyæmia, and that is, a profuse supply of fresh air.

The Address in Physiology, by Dr. Sharpey, contains a review of the leading features and incidents which have marked the progress of the science in recent times. The great benefits that have arisen from the establishment of schools of physiology are pointed out, especially as these institutions are managed in Germany. In this connection the lecturer felt obliged to descend to an argument addressed to the well-meaning persons who indulge in "indignant but misdirected declamation against experiments upon animals." This reminds us of a similar condescension upon the part of several eminent writers in defending the use of anæsthetics against the cavils of those who could not bear to see parturition deprived of its pangs, lest the fulfilment of the prophetic curse on Mother Eve should be hindered of its accomplishment. For such Pecksniffian objectors the most appropriate argument is contempt. We need not follow Dr. Sharpey in his exposition of the value of microscopical investigations, and of numerical determination in physiology, nor in his sketch of the progress of physiological chemistry. The physiology of the nervous system; that of reproduction; the recent advances in histology; and the prevailing views of the forces of the living organism, are briefly considered, and some of the more important of recent acquisitions to positive knowledge are clearly presented. We are struck, however, with the absence of all allusion to certain names, discoveries, and views, which we suspect that his audience were prepared to hear mentioned. A. S.



ART. XXVI.—*Pathological and Practical Observations on Diseases of the Abdomen, comprising those of the Stomach and other parts of the Alimentary Canal, Œsophagus, Cæcum, Intestines, and Peritoneum.* By S. O. HABERSHON, M.D., Lond. F.R.C.P., Senior Assistant Physician to Guy's Hospital, &c. &c. Second edition, considerably enlarged and revised. London: John Churchill, 1862. 8vo. pp. 594.

THE early demand for a new edition of this work, shows that the profession accord with us in the favourable opinion we expressed of it on its first appearance (see No. of this Journal Jan. 1860, p. 198). In the present edition every portion of the work has been carefully revised, and not only have large additions been made to the text, but a number of cases are given to further illustrate the phases of disease; and a very interesting chapter on peritonitis has been appended.

In the different chapters of the work frequent reference is made to the disease of the serous investment of the intestines, but in the chapter appended to the present edition, the author specially reviews the general forms of peritonitis—describes the pathological appearances presented—enumerates the symptoms by which it is indicated—the causes which produce it, and points out the treatment best calculated for its removal.

Dr. H. first describes the progress of peritonitis from its earliest pathological appearance—congestion of its capillary vessels with loss of its smooth and shining character—to its termination in effusion of serum or pus, and of lymph, causing adhesions of the abdominal contents, or thickening of the membrane from effusion of fibrin within its tissue, &c. &c.

The *symptoms of acute peritonitis*, Dr. Habershon remarks, “are generally very characteristic, as when, for instance, the stomach and appendix cæci are perforated by ulceration, sudden intense pain comes on, the patient is ‘doubled up,’ unable to move, and lies with the legs flexed; the countenance expresses the intensity of the suffering, as well as the serious nature of the disease; the distress and pain are evident in the features, the eyes are sunken, the face is pallid, the abdomen very shortly becomes distended, tender, and tympanitic; no pressure can be borne, and even the weight of the bedclothes becomes insufferable; the pulse is small, compressible, and if reaction take place from the first sudden collapse, it becomes more hard and frequent, wiry; the bowels are generally confined, especially at the early stage of the acute disease, but sometimes towards the close of the malady diarrhœa may supervene. The urine is scanty, and if the vesical peritoneum be involved, retention often takes place. If the peritoneal surface of the stomach be implicated, vomiting is a frequent and distressing symptom, and green bilious fluid is ejected. The mind may be conscious and strong throughout, even when the powers of life are fast failing, and the pulse scarcely perceptible at the wrist.

“In many cases of perforation the patient scarcely rallies from the first sudden collapse, and death takes place in five to ten hours after the onset of the disease; in other instances, however, the signs of febrile excitement are more evident, as shown by heat of skin, especially of the abdomen, by thirst, and by a frequent and hard pulse. If the disease tend to an unfavourable termination, the prostration increases, the patient is restless, the tongue dry and brown, the pulse compressible, failing, and irregular; the extremities become cold, a clammy sweat breaks out, hiccough comes on, and then death follows, the patient often remaining sensible till the close, and the subsidence of pain, as life is ceasing, occasionally gives to the superficial observer a false hope of recovery. On the contrary, when the vomiting subsides, the pain and distension lessen, the countenance becomes less haggard and dejected, the pulse soft and less frequent, but tolerably firm, and especially, when the patient has refreshing sleep, we may regard the immediate danger as less imminent. Gradually all the symptoms may disappear, and the patient completely recover, with perhaps some peritoneal adhesions and thickening. It may be that effusions take place, which are more gradually absorbed, or become very persistent; again, if fecal



extravasation have occurred, repeated attacks of local peritonitis, with hectic fever, follow, or renewed general inflammation destroys the life of the patient."

The *paroxysmal* occurrence of the pain in strumous peritonitis is noticed by Dr. H. This paroxysmal character is often very striking. We have seen the pain recur with the regularity of a paroxysm of intermittent, the patient during the interval being so entirely free from suffering as to lead to the hope that the disease was arrested; but this delusion would be dispelled at the regular period by the recurrence of pain resembling a severe attack of colic. It may be observed also that in this affection "the bowels are often irregular, the stomach sometimes irritable, the tongue red and injected, the patient fretful, and as the intestines become matted together by adhesions, the viscera move *en masse*, and a doughy sensation is communicated on manipulation. Or these strumous and inflammatory adhesions may be local, simulating abdominal tumours. The indications of disease are also associated with general strumous cachexia, and are often complicated with pulmonary disease. Too frequently hectic supervenes, and this is especially the case when fecal abscess has been produced, and the hope of ultimate recovery is then almost taken away. In strumous peritonitis also the pain may be very slight, whilst effusion gradually takes place to a considerable extent, as we sometimes find in children after measles, &c., or excessive tympanitis may be produced without any acute pain."

The *diagnosis* of peritonitis is not always easy. The pain may not only be absent on account of the peculiar character of the disease, but the patient may be rendered unconscious of it from cerebral oppression or from the dyspnoea and distress of pulmonary and cardiac disease. The author points out the following means of distinguishing peritonitis from the painful conditions of the abdomen for which it may be mistaken:—

"1st. Flatulent colic. The pain and distension are in this disease sometimes very severe. the countenance may be haggard and distressed, and collapse sometimes results; but there is not the tenderness of peritoneal inflammation, the symptoms are less persistent, the pulse less affected, the collapse rarely so profound. 2d. In hysterical affections of the abdomen, the pain is very superficial, and firm pressure can frequently be borne, whilst the patient almost shrieks before the hand has reached the surface; the countenance does not express the distress of serious organic disease, the pulse may be almost unaffected; still, in this disease, we have seen the patient bled from the arm to syncope, with the idea that acute disease existed. 3d. The vomiting and sudden pain of perforated intestine are sometimes mistaken for gall-stone; but the latter disease is free from the acute tenderness and distension of peritonitis. 4th. Neuralgic pain from disease of the spine, of a functional or organic character, often simulates peritonitis; but here, also, there is an absence of tenderness on pressure of the abdomen, of distension and tympanitis, as well as of the general expression of peritoneal disease; the pain is situated in the course of the spinal nerves, and often extends over the crest of the ilium in the course of the last dorsal nerve, or into the groin and testicle in the course of the genito-crural nerve; there are also, generally, some indications of spinal disease in local pain of the vertebræ, with modified motion and sensibility of the lower extremities, and loss of power of the sphincter muscles. 5th. Suppuration of the abdominal parietes is at an early stage very difficult to distinguish from peritonitis. 6th. The pain from the distension consequent on the enlargement of abdominal tumours and effusions may easily be mistaken for peritonitis, as, for instance, in aneurism, in ovarian and cancerous tumours, and in dropsies; but in these cases, as we have before said, peritoneal disease is often set up in the progress of the malady. 7th. During the course of peritonitis, the muscular fibres of the bladder sometimes fail to contract, apparently from loss of power, and the urine is retained, thus closely simulating simple retention of urine; on the contrary, we have also witnessed distension of the urinary bladder from enlarged prostate or other cause, producing pain which resembled peritonitis, and which had been sent to the hospital as a case of abdominal tumour."

Dr. H. divides the causes of peritonitis into three classes:—

"1. Peritonitis produced by the extension of disease from adjoining viscera, or excited by direct injury, including cases of perforation of viscera, extra-

vasation, violence, &c. 2. Peritonitis connected with blood changes, as when inflammation of the serous membrane occurs in the course of albuminuria, pyæmia, puerperal fever, erysipelas, &c. 3. Peritonitis caused by general nutritive changes of the system, which have been followed by acute or chronic disease of the peritoneum, such as struma, cancer, &c.; and comprising also those cases in which the circulation of the peritoneum has been so altered by continued hyperæmia (modifying its state of growth), that very slight exciting causes suffice to induce acute mischief, as occurs in peritonitis with cirrhosis, disease of the heart, &c."

Of 501 cases of peritonitis met with in the *post-mortem* examinations during a period of twenty-five years at Guy's Hospital, 261 were of peritonitis from direct extension, 94 were connected with blood change, and 146 with general or local perverted nutrition.

An important cause of peritonitis is perforation of the intestine into the peritoneal sac, and this occurred in the 501 cases 56 times. 10 times from hernia; 9 from disease of stomach; 15 from fever-ulceration of ileum; 4 from strumous disease; 11 from disease of cæcum and appendix; 1 from cancer of vagina; 4 from cancer of colon; 2 from ovarian adhesion.

With regard to the treatment of peritonitis, Dr. H. thinks that our best guide is the consideration of the origin of the disease, whether it arise, "1st, from extension of disease from adjoining viscera, or from perforation and injuries; 2d, from blood changes, such as occur in albuminuria, pyæmia, and erysipelas, &c.; 3d, from almost imperceptible changes or deficiencies in general nutrition modifying the state of the general health, as in struma, cancer, and climacteric changes; or from the hyperæmia of the peritoneum, consequent on cirrhosis and chronic disease of the heart and lungs, when upon very slight exciting causes, acute mischief follows. In the first form, if perforation have taken place, perfect rest is exceedingly important, in diminishing extravasation, and in localizing the peritoneal mischief; purgative medicines of all kinds should be avoided, and also stimulants, which are often unfortunately given at once, before a medical practitioner sees the patient, in perforation of the intestine. This injudicious attempt to relieve pain by purgatives, carminatives, and stimulants, may deprive the patient of the hope of recovery; for, as we have before said, we have seen castor oil floating in the peritoneal cavity. Food, also, should be abstained from, or only a few spoonfuls administered to relieve thirst; in more chronic forms, not arising from perforation, food of a fluid and bland kind is only admissible; and even when the more active symptoms have subsided, the return to solid forms of aliment must be very cautiously made. When there are symptoms of failing power, stimulants in small quantities may be given, but are best combined with demulcent food, as brandy with arrowroot, &c.

"As regards medicinal treatment, we believe the plan recommended by Dr. Stokes and Dr. Graves to be of the greatest value, not only in cases of perforation of the intestine, but where the peritoneum is acutely inflamed from the direct extension of disease. It consists in the administration of opium in full and repeated doses; and its beneficial result arises from its favouring rest of the intestines and the localization of the mischief, from the mitigation of suffering which it affords, whilst at the same time it alleviates nervous prostration and collapse, and facilitates reparative action. In many instances the opiate plan may be combined with local, and sometimes even with general depletion; anodyne remedies may be applied externally, or counter irritants, as cantharides and turpentine. Local peritonitis is thus greatly relieved by local depletion and external applications, as when produced by ovarian and cæcal disease; but blisters are of value, especially in those instances in which repeated attacks of peritonitis occur. Mercury, either in the form of gray powder, calomel, blue pill, or as mercurial inunction, is, we believe, injurious in all these cases of acute direct peritonitis. It tends to prevent adhesion, it excites peristaltic action, it promotes ulcerative action, it increases the depression consequent on the disease, which is often the immediate cause of death, and lastly, it renders the intestinal contents more fluid, thereby increasing extravasation. We are well aware that many instances of acute peritonitis from diseased cæcum, from enteritis, and from ovarian disease, recover after mercury has been given; but



as far as the causes we have enumerated can be any guide, and from extensive experience in these cases, we strongly deprecate its use.

"Effervescent medicines generally increase the painful distension of the abdomen, but diaphoretics and salines are sometimes of value when combined with opium.

"In the subsequent treatment we must not be too desirous of inducing action from the bowels, and, when necessary, gentle enemata are better than purgatives administered by the mouth.

"When the more active symptoms have subsided, opium may be continued with vegetable tonics or with quinine. If fluid effusions have formed, iodide of potassium and diuretics may be advisable, and the abdominal glands may then be beneficially stimulated by an occasional dose of gray powder or calomel. Preparations of iron are not generally well borne in the convalescence from acute peritonitis. It will often be found that as the health becomes established the fluid effusion rapidly disappears; in other cases the repeated application of counter irritants may be required, and sometimes it is well to remove the serum by paracentesis.

"In the peritonitis of *albuminuria* the best treatment consists in the relief of the general disease by diaphoretic medicines, counter irritation and cupping on the loins, and by free evacuation of the bowels; but mercurial preparations very readily affect the system, producing severe salivation, without corresponding benefit. When effusion becomes extreme, it is better to attempt its removal by puncturing the thighs and by purgatives than by directly emptying the serous cavity. Hot-air baths are sometimes of great service.

"In the treatment of the peritonitis of pyæmia and erysipelas the local disease is to be less regarded than the general one, nor should we attempt to cure the peritonitis of this kind by depletion and mercurial preparations. Opium and salines, with the free use of stimulants, are apparently the best remedial agents we can employ. Typhoid symptoms too frequently come on, and precede a fatal result.

"In *puerperal* peritonitis the same plan of treatment may be adopted. In some cases the blood becomes affected by the absorption of pus; or pelvic phlebitis and cellulitis are followed by the peritoneal disease; and, from the beneficial effect following the internal administration of tincture of the sesquichloride of iron in erysipelas and diphtheritic disease of the throat, Dr. Heselop has recommended the same remedy in puerperal peritonitis, as being a disease closely allied in character. Those cases which we have seen recover have apparently been benefited by thoroughly washing away uterine discharges by the free use of opium, and by stimulants; but we are quite prepared to hear further reports of the good results of the tincture of the sesquichloride. In puerperal peritonitis the use of turpentine internally has been recommended, and has been followed sometimes by a beneficial result.

"In the treatment of acute peritonitis in *struma*, the same rules ought to be borne in mind as in the treatment of strumous pneumonia. Opium is of value not only in relieving the pain and the great nervous prostration so constant in disease of the abdomen, but it also facilitates the recovery of the injured structure. Warmth, anodyne applications, the use of local depletion may be used; purgatives should be avoided, and rest strictly maintained; but mercurial preparations, given so as to affect the mouth, are as injurious in this form of strumous complication as in any other, and it is not necessary to recur to mercury for an aperient remedy, nor to prevent the opiates from checking secretion.

"In the more chronic forms of the disease, the means best calculated to remove the local malady are those suited for the removal of the general state; such as nourishment as far as it can be borne, cod-liver oil, steel as the iodide, steel wine, the iodide of potassium, alkalies, &c. Occasional counter irritants may be used, and moderate pressure on the abdomen employed to promote the absorption of serous effusions; an elastic bandage, strips of plaster, as the adhesive or the belladonna plaster, may be thus applied; in some instances in which I have used the ammoniacum plaster with mercury, the intolerable itching which was produced compelled the removal of the application. Residence at the sea-side greatly facilitates recovery in these cases. In slow strumous



effusion, especially in young persons, after peritonitis, it is often extremely difficult to produce absorption, and paracentesis is sometimes advisable.

"Peritonitis with *cancerous* disease is always associated with enfeebled power and diminished functional activity. Remedies such as diuretics have very little effect in promoting the absorption of fluid, and any measure which still further diminish strength appear to increase dropsical effusion. To sustain the powers of life by every available means is the best preventive against this result. If acute symptoms supervene, the opiate plan of treatment must be followed with rest and bland nutritious diet. If paracentesis be performed, temporary relief may be obtained; but more frequently the patient very rapidly declines, and we then find that the whole of the diseased peritoneal surface has increased in vascularity, and lymph is poured out.

"Peritonitis with cirrhosis is generally found in persons who have been of intemperate habits; the arteries are often diseased, and the kidneys may be granular and atrophied. At an early stage of the disease, when the diet can be regulated, and the excretory functions of the liver, the kidneys and the skin stimulated to increased action, the symptoms may, in a great degree, be alleviated; and when acute peritonitis is set up with cirrhosis, no class of cases are more benefited by the judicious use of the ordinary remedies for peritonitis, namely, local depletion, and mercurials with opium, on account of the stimulant effect which mercurials have on the excretory glands; but all the good effect of mercury may be attained without that remedy being used so as to produce salivation."

In chronic peritonitis associated with advanced cirrhosis, Dr. H. does not hold out hopes of success from any course of treatment. He considers that our measures in this condition can at best be only palliative. "Some," he remarks, "have recommended mild mercurial salivation before tapping, to prevent the supervention of acute symptoms; but we have no experience in such an application of this medicine, and believe, that if tapping be really necessary, mercurial salivation would be detrimental, and would increase the exhaustion which often follows the operation, or that the mercurial cachexia would lead to the speedy reaccumulation of the fluid. Mercurial frictions are less objectionable when used with moderation; and minute doses of blue pill, with tonics, as quinine, or with aperients, are, in many instances of chronic peritonitis from hepatic disease, of great service. Other remedies may also be tried, as diuretics, iodide of potassium, nitro-hydrochloric acid, &c., but the persistent congestion of the vena portæ interferes with their absorption and with their beneficial action. Nearly the same remarks apply to the treatment of peritonitis coming on in the course of chronic disease of the heart and of the lungs. In these cases I never recommend paracentesis, unless compelled by the urgent distress from enormous distension."

Dr. H. does not believe that the benefit generally ascribed to mercury in the treatment of acute peritonitis is an established fact, a doubt in which we must say we do not participate, though we are free to confess that a portion of the relief which has followed its use may be due to the opium with which it is usually combined.

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ART. XXVII.—*Anatomy of the Arteries of the Human Body, Descriptive and Surgical, with the Descriptive Anatomy of the Heart.* By JOHN HATCH POWER, M. D., Fellow, and Member of Council, of the Royal College of Surgeons; Professor of Descriptive and Practical Anatomy in the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, etc. Authorized and adopted by the Surgeon General of the United States Army for Use in Field and General Hospitals. Philadelphia: J. B. Lippincott and Co., 1862, 12mo. pp. 401.

A SHORT notice of the English edition of this work was given in the number of this Journal for April, 1861. As the work has now been republished in this country, and more particularly as it appears under the authority of the Surgeon

General, and has been adopted by him for use in the Field and General Military Hospitals of the United States, a more extended notice seems to be required.

In the preface the author says: "The present work has been undertaken chiefly with the view of assisting the student whilst engaged in the study of practical anatomy, and of affording him such practical information in connection with the anatomy of the arterial system, as may be of advantage to him long after his studies have been completed.

"For the purpose of effecting these desirable objects, I have endeavoured to simplify as much as possible the anatomical details, and to bring together such material facts in relation to the operations upon the principal arteries of the body, as may lead to correct conclusions relative to the treatment of the various accidents and diseases to which these vessels are exposed."

He subsequently says, that he has not overlooked the fact that there are many practitioners, particularly those in rural districts, who do not possess any opportunity of refreshing their memories upon anatomical points by actual dissection, and that he is not without hope that, to such, the present volume may afford some useful hints as to the relations of those bloodvessels which, from time to time, may become the subject of their operations.

The description by Dr. Power, of the anatomy of the heart is clear, succinct, and correct. The directions given to guide in its dissection are not, however, as numerous or as judicious as they should be. For example, to see the internal surface of the right auricle, the student is advised to make one incision in a vertical direction through the front of the auricle, connecting the orifices of the superior and inferior venæ cavæ, and a second in a slightly curved direction, the convexity directed downwards, commencing at the lower part of the right auricular appendix, and terminating in the superior extremity of the preceding incision. This purpose is effected much better by a transverse incision from the auricle to the inferior vena cava, and a vertical one beginning at the superior vena cava and meeting the other in its centre. Again, to expose the interior of the right ventricle a V-shaped incision, one branch of which is on the right edge of the heart, and the other along the anterior fissure, is decidedly preferable to an incision in the direction of the axis of the heart, and close to the septum ventriculorum. The figures by which the anatomy of the heart is illustrated are remarkably coarse.

In describing the arteries, Dr. Power gives an excellent account of the origin, the situation, the direction, the form, the anastomoses, and the relations of each particular vessel. Of the manner in which arteries terminate, and of the tissues of which they are composed, not one word, however, is said. The student is left in entire ignorance as to whether the arteries are continuous with the veins, or any other bloodvessels, and as to whether they possess one coat or a dozen. There is another point, moreover, of infinite practical importance, to which no reference is made, and this is, the general relations existing throughout the body, between the arterial system, and the veins, the nerves, the aponeuroses, the muscles, and the bones. A knowledge of them is of the greatest service to the surgeon in assisting in the recollection of the particular relations of every particular artery. As these general relations are quite commonly omitted in works on anatomy, it may be well to enter somewhat into their consideration, in order to set forth more clearly the value we attach to them, and the importance of not omitting them in a work of the pretensions of the one before us.

There is but one vein accompanying the arterial trunk of the body, the neck, the head, and the origin of the limbs; for the arteries distributed to the arm, the forearm, and the hand, and also to the leg and the foot, there are two. When there are two accompanying veins, the artery is always between them; the veins being either to the right and left, or before and behind. The knowledge of the relative situation of these vessels is of great importance in surgery, for it is not always easy to distinguish an artery from a vein, and it is very important to make the distinction when hemorrhage must be arrested by the application of a ligature. There can be no uncertainty in the selection of the vessel, if, after having exposed the three parallel tubes, the operator recollects that the one placed between the others is *always* part of the arterial system. In those places



where the artery is accompanied by only one vein, the vein is generally the more superficial. Thus, the internal jugulars are nearer the skin than the primitive carotids, the subclavian veins are more anterior than the corresponding arteries, and the axillary and the crural veins are more internal (towards the centre of the body) than the arteries of the same name.

The arteries are always more deeply seated than the nerves by which they are accompanied. Thus, the cords of the brachial plexus are nearer the skin than the subclavian artery; the median and cubital nerves cover the axillary artery; the median nerve passes before the brachial artery and places itself then on its internal side; the radial and ulnar nerves are situated, one outside of the radial artery, the other inside of the ulnar, so that these vessels are nearer the axis of the forearm, and the nerves nearer the integuments. On the thigh, the crural nerve occupies likewise the external and anterior side of the femoral artery, and the internal saphenous nerve runs along the anterior portion of the same vessel. To be brief, then, the law determining the respective positions of the arteries and the veins, is also that regulating the relations of the nerves with the arteries; and this law is itself derived from the constant tendency, presented by the arteries, to hide themselves among the most deeply seated parts. The general relations of the arteries, the veins, and the nerves, can be expressed by saying that an incision practised upon one of the limbs for the purpose of dividing these different organs, would meet first the nerves, then the veins, and lastly the arteries.

The general relations of the arteries with the aponeuroses of the limbs; with the muscles, particularly those projecting under the skin by which the course of an artery can often be decided just as from the study of bony eminences, articular lines are recognized; and with the bones, regulating the most favourable places for exercising compression, are of very great practical interest. The general relations of arteries with the common cellular tissue of the body, are not to be overlooked. This tissue is close, when the artery is contiguous to a vein, and on the contrary very loose, at all points where it is in contact with fibrous, muscular, or bony surfaces. From this it happens that the vein and the artery are associated in the various displacements they undergo; and it is owing to this also that in applying a ligature the separation of the artery from the vein is the most difficult part in isolating the vessel, and that when there are two veins the difficulty is much increased. This cellular tissue around the vessels is traversed by numerous small bloodvessels, that supply the walls of the arteries; and when an artery is isolated to apply a ligature, these vessels are torn as well as the surrounding cellular tissue; hence, it is so important, in isolating an artery not to surpass the limits necessary to the success of the operation.

We believe that the importance of the consideration of the general relations of the arteries will be obvious to all, and that we may justly complain at not finding any reference to them in the book here presented to us.

The figures illustrating the anatomy of the arterial system are more neatly executed than those representing the heart.

Beside the account of the anatomy of the different arteries, a description is given of the mode of ligating certain amongst them. Here, again, we think, explanation should have been given of the action of the ligature, together with general rules to guide in its application. It is only by a perfect understanding of general principles and general rules that a particular operation can be safely and skilfully practised. In a work designed for students, wherein the operation of placing a ligature upon certain arteries is described, it seems to us a great omission to have said nothing of the three coats of the arteries, of the action of threads of different thickness upon these coats, of the effect of arresting the circulation of the blood, of the pathological processes that take place in the ligated vessel, and of the instruments that are required in the operation, and the manner in which they are to be used in seizing, isolating, and surrounding the artery with the thread.

As to the several operations described by Dr. Power for ligating the particular arteries, they are by no means such as a student could readily and successfully practise. If we take, for example, the lingual artery, we are told here that it "may be exposed by an incision extending transversely from the os hyoides to



the margin of the sterno-mastoid muscle. The skin, platysma, and fascia being divided, the glistening tendon of the digastric muscle is brought into view; beneath this, and lower down, is the hypo-glossal nerve, much duller in its appearance than the tendon; whilst the artery will be found situated still lower and a little deeper than the nerve" (p. 99). A much safer and surer direction for reaching the artery would be to direct an incision to be made one and a half inches long, two lines above the great horn of the hyoid bone, and parallel to it, through the skin and platysma muscle; the lower border of the submaxillary gland is thus reached. The gland should be turned up out of the way, as a muscle would be, and beneath it the shining tendon of the digastric muscle is seen, embraced by the stylo-hyoides. Detaching these muscles from the hyoid bone, and turning them up, the hypo-glossal nerve is reached; just below this nerve, divide transversely the hypo-glossal muscle, and the artery is found.

When treating of the brachial and the femoral arteries some mention is made by Dr. Power of the employment of compression in the treatment of aneurism of these vessels; but the principles by which external pressure is to be methodically employed, the various instruments to be used, and the satisfactory results to be thereby attained, are not related. This is the more astonishing inasmuch as Dr. Power's work was originally published in Dublin, where so much has been done in this mode of treating aneurism. We can find no mention whatever made of the treatment of aneurism by forced flexion of the limb, nor of the adoption of this position for the arrest of the arterial circulation in cases of hemorrhage in the lower portions of the upper and lower extremities.

The reflections we have made upon Dr. Power's book, as one professing to treat of the descriptive anatomy of the heart, and of the descriptive and surgical anatomy of the arteries, must apply with still greater propriety to the same work when announced as a surgical anatomy of the arteries, and as issued for the use of surgeons on the field of battle and in army hospitals. In such a work a long account of the anatomy of the heart, of the distribution of the branches of the internal carotid, of the circulation of the blood in the liver, and of the pulmonary arteries, is not only unnecessary, but the book is increased in size, and therefore more cumbersome and less easy of reference. This will be found the more annoying, when the work shall be consulted in a hurry, as we must imagine it is intended to be when used on the field of battle, by the absence of an index to its contents.

In conclusion we may say that this work is a good manual for the use of students in pursuing their dissections; imperfect as a guide to aid the surgeon in performing operations, and defective and unsatisfactory as a work for hurried reference. We cannot, therefore, notwithstanding the high estimation in which we hold the approbation of the surgeon-general of the U. S. army, but regard it as unsuited for the purpose for which it has been issued in this country.

W. F. A.

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ART. XXVIII.—*The Institutes of Medicine*. By MARTYN PAINE, M. D., LL. D., Professor of the Institutes of Medicine and *Materia Medica* in the University of the City of New York, etc. etc. etc. Seventh edition. 8vo. pp. 1130. New York, 1862. Harper & Brothers.

WE cordially welcome this new edition of Dr. Paine's *Institutes*. The continued demand for the work must be received as evidence that it is duly appreciated by a large number of the reading and reflecting portion of the medical profession of our country. These *Institutes* are not only replete with truths in relation to physiology, pathology, and therapeutics, respectively, but in the doctrines inculcated by the author in each of these departments of medicine, will be found many thoughts of a highly suggestive character, which, if carried out to their legitimate results, cannot fail to lead to a recognition of the important truth that, in all his ministrations, the physician has to do with a living vital organism, all of whose abnormal states are to be received as

the results, immediate or remote, of disturbances of vitality—for the correction of which those remedial agents alone can be effective as act immediately upon living organs, and are capable of bringing about such a modification of their disturbed vitality as shall be adapted to restore their actions, and, as far as practicable, their tissues to their normal conditions.

The present edition of the Institutes does not differ in any material degree from its immediate predecessor, but seems to be printed from the same stereotype plates. Some brief foot notes have been added, and a few addenda, which suggested themselves after the first impression was stricken off, are presented in the form of an appendix at the end of the volume. D. F. C.

ART. XXIX.—*The Hospital Steward's Manual: for the Instruction of Hospital Stewards, Ward Masters, and Attendants, in their Several Duties.* Prepared in strict accordance with existing regulations and the customs of service in the armies of the United States of America, and rendered authoritative by order of the Surgeon General. By JOSEPH JANVIER WOODWARD, M. D., Assistant Surgeon U. S. A., Member of the Academy of Natural Sciences of Philadelphia, etc. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 324.

THIS little work, after having been approved by a board of medical officers, has been adopted by the Surgeon General of the U. S. Army as a guide to the stewards and other attendants of U. S. military hospitals.

Its contents are divided into five parts, treating respectively of hospital stewards and other hospital attendants, with a general outline of their duties; of the discipline, police, and general supervision of military hospitals; of provisions and hospital stores, and the preparation of food in hospitals; of medical supplies and the general arrangement and management of the dispensary, with some explanations in regard to compounding and distributing prescriptions; and of dressings and those operations in minor surgery performed by a steward or other hospital attendant.

A book of this kind was much needed, and no one could be better qualified for the undertaking than the author of the present. It is well printed in large clear type, and well illustrated. At page 305 is a wood-cut, where the left hand is engaged in doing what Dr. Woodward tells us the right hand should do, and what the right hand generally does do. This is all we have been able to discover not exactly as it should be in this most useful little work.

W. F. A.

ART. XXX.—*A few Remarks on the Primary Treatment of Wounds received in Battle: a Report to the Surgeon General of Massachusetts.* By GEORGE H. GAY, M. D., Surgeon at the Massachusetts General Hospital. Boston, 1862. 8vo. pp. 8.

THE remarks on the primary treatment of gunshot wounds, published in this little pamphlet, are in strict accordance with the teachings, derived from experience, of the best military surgeons in all countries.

They contain nothing original in regard to the treatment of such injuries; nothing but what every one should know well before attempting the practice of his profession.

Nevertheless we believe the publication a useful one, or rather one that would be a useful one, if a great number of the surgeons in this country would read it, and read it too with a belief that others may have a better knowledge than themselves of what is right in medicine.

W. F. A.

# QUARTERLY SUMMARY

## OF THE

### IMPROVEMENTS AND DISCOVERIES

#### IN THE

## MEDICAL SCIENCES.

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### ANATOMY AND PHYSIOLOGY.

1. *The Deep Origin of the Facial Nerve.*—The *Gazette Médicale de Paris* (Nos. 22, 24, 30, 34, 36, and 38, 1862) contains an elaborate memoir by M. A. VULPIAN, Prof. agrégé of Med. Fac. of Paris, communicated to the Biological Society, entitled, "Experimental Researches respecting the Effects of Lesions of the Floor of the Fourth Ventricle, and especially on the Influence of these Lesions on the Facial Nerve." The following are his conclusions relative to the deep origin of the facial nerve:—

1. The facial nerve derives its principal origin from a point of the encephalic isthmus situated at the level of the floor of the fourth ventricle, and at a very small distance from the surface of that floor. In the dog, the point of origin is placed about two millimetres astride the central furrow, at the junction of the anterior two-fifths with the posterior three-fifths of the flow. 2. This point of origin is the true centre and focus of the reflex actions of the nerve. Vivisections prove that it is only necessary for this centre to be intact, and the nerve in communication with it, in order that reflex actions of the facial muscles may be produced. 3. The deep origins of the right and left nerves communicate by commissural structures. 4. Certain root-like fibres directly traverse the median raphe, and consequently decussate on the median line. But these fibres are very few in number, and we cannot confidently assign them as the cause of the cross-influence of the hemispheres on the facial muscles. This influence is doubtless chiefly made possible by the considerable decussation between the elements of the two halves of the encephalic isthmus at the median raphe. It is not proved that any determinate part of the decussating elements belongs specially to the facial nerves.

2. *Epithelium of the Air-Cells.*—It is generally believed that epithelium is not present in the air-cells of the lungs. Dr. C. J. EBERTH, of Würzburg, does not participate in this belief; in an interesting paper in *Virchow's Archives* (Bd. xxiv. Heft 5 and 6) he gives the following as the result of his investigations.

"1. The air-cells of the lung at their bases and side-walls possess a delicate interrupted epithelium, which particularly occupies the meshes of the vessels. Only the narrow free edges of the divisions of the air-cells are without epithelium.

"2. The compactness of the epithelial layer is dependent on the extent of the air-cells, and the degree of fulness of the vessels.

"3. The projections of the vessels which are found between the epithelial cells have hitherto led to the assumption of a complete epithelium.

"4. The nuclei lying in the capillary meshes, conceived sometimes to be those of the epithelium, at others to be those of the stroma, are the nuclei of the epithelium."



3. *Identity of Hæmatoidin and Bilifulvin.*—Dr. MAX JAFFE, of Berlin, after alluding to the researches of Zencker, Brücke, Valentine, Kühne, &c., on the same subject, states that he has obtained crystals in a chloroform solution of bile, which in form and all known reactions closely agree with hæmatoidin. He then proceeds to describe an examination of a cerebral apoplectic cicatrix, which proved that hæmatoidin and bilifulvin were identical.

This cicatrix, which was of a yellowish-brown colour, and showed under the microscope a large number of crystals of hæmatoidin, was dried in a water-bath and cut into small pieces. A chloroform extract was made, and was then moistened with a few drops of absolute alcohol, by which the action of the chloroform was apparently facilitated. The extract which contained the cerebral fat was of a deep yellow colour. The chloroform extract was then gently evaporated down in a watch-glass, and for twenty-four hours was placed in a darkened place (for fear of oxidation changes, which, in the case of bilifulvin solutions, take place in the sunlight, and quickly produce changes of colour), and then examined microscopically. It was found to consist of transparent, golden-yellow, beautifully formed crystals, corresponding accurately to hæmatoidin in form.

On freeing the crystals by ether from fat, a portion of them became dissolved therein (pure ether as well as pure alcohol partially dissolves bilifulvin), the remaining crystals being soluble with tolerable facility in solution of carbonate of soda. The yellow solution became green during filtration. A small remaining portion was treated with sulphuric acid and examined, and the crystals then showed the well known colour-play of biliary colouring matter. Similar changes were observed in the chloroform solution on the addition of sulphuric acid.

From these observations on the microscopical and chemical character of the crystals, the author concludes that hæmatoidin and bilifulvin are identical, and he points out the bearing which this statement has upon our views regarding the changes of blood-cells in the liver.

Examinations of other apoplectic changes in portions of brain which had been long immersed in spirit did not disclose crystals of bilifulvin.

The fat which remained after distillation of the yellow chloroform extract assumed the shape of margaric acid crystals, and probably mechanically hindered the formation of bilifulvin crystals.—*Brit. and For. Med.-Chir. Review*, Oct. 1862, from *Virchow's Archiv.*, 1861, Bd. xxiii.

## MATERIA MEDICA AND PHARMACY.

4. *Action and Uses of Codeia.*—Dr. ARAN, Professor Agrégé at the Faculty of Medicine, and Physician-in-Chief to the Hospital St. Antoine, has lately made some experiments with codeia, and says that as yet he has employed "this alkaloid only to obtain calm and sleep, but from the ten or twelve cases I have witnessed I have been able to discover in this agent sedative and narcotic properties, which in my estimation place it in the first rank amongst the best remedies of this kind existing. To recapitulate in a few words the impression this medication has made upon me, I will tell you that the codeia seems to me to contain the most marvellous and efficacious properties of opium. Inferior to morphia for calming pains, for this reason only, that it must be given in larger doses to patients; it has, however, over morphia, a marked superiority in that respect, that it never occasions a heavy and agitated sleep; that it does not bring on perspiration or eruptions of the skin, nor trouble the digestion; that it produces no obstinate constipation, no desire to vomit nor any vomiting. For all these considerations codeia appears to me to be destined to become of great service in the nervous diseases of the stomach, and I can tell you that we have obtained with it some calm in cases of gastrodynia, which had defied all other means, belladonna included.

"But it is especially as a means of procuring calm and restoring sleep that the codeia seems to me called to occupy an important place in therapeutics.

Those stubborn and harassing coughs of bronchitis, and particularly of consumption, those violent pains of rheumatism, gout, and the organic affections, of cancer, for instance, which disturb the sleep, and frequently deprive the patients of the least moments of repose, are all forgotten in the midst of the calm and agreeable sleep which codeia procures.

"I have witnessed two very conclusive cases of incurable cancerous tumours, for which no means of relief, at all lasting, had been found. One of these tumours, of an enormous size, almost filled the pelvis, and produced on the passage of the sciatic nerve pains returning at about 8 o'clock P. M., and with such an intensity as to force cries from the patient, who could only become calm but towards the morning, when she would fall asleep, overcome with fatigue. Two centigrammes<sup>1</sup> of codeia produced the first day a calm so complete that the patient thought herself cured, and for the first time since a month she was able to take a somewhat copious meal, her appetite having returned for the first time. During the twelve days I attended this person, the pains were almost nul, and as soon as they reappeared the invalid mastered them with a few centigrammes of codeia; it became, however, necessary to increase the dose by degrees, and from two centigrammes the patient increased the dose to ten and twelve centigrammes.

"To explain how so small a dose produced a calm so complete, I must observe that her weak state rendered her very sensitive to the action of codeia, which, on the other hand, appears to me quite able to be given from the first in a much larger dose than morphia. For example, we have seen the dose of five centigrammes of it in the syrup calming the pains of gastrodynia without leaving the slightest trace of narcotism; and one of our patients takes at present every day fifteen centigrammes of codeia without any bad effect. This invalid, who has long made use of opium and morphia, establishes between those agents and codeia a difference quite to the advantage of the latter, which does not agitate her at all."—*Ed. Med. Journ.*, Sept. 1862.

5. *Use of Malt and Beer in Therapeutics.*—Malt has been long since used in Germany, and particularly in Berlin, as a popular remedy for bronchial catarrh and dyspepsia. It is, however, not more than a year since the German physicians began to prescribe it after Itustendt, who first announced its advantages.

In France, brewers were accustomed to use a tisane of malt for bronchitis and rheumatism, and lately Dr. Frémy has tried this therapeutic agent for many months on patients in the Beaujon Hospital.

Dr. Frémy received direct from a Berlin brewery the medicinal preparations of the beer, the powder of malt and the malt beer, and with these he made his experiments. According to comparative analysis by Chevrier, essential differences exist between such malt and that in use at the Paris breweries. In the first place, the Paris malt shows no trace of diastase, while that of Berlin contains forty-five centigrammes in every thousand grammes.

The latter also contains a considerable quantity of lupuline, of which there is no trace of the former, as well as a portion of cane sugar, which renders it more pleasing to the taste. We must consequently conclude that the method of preparing such malt is different from that followed at Paris. The malt beer is its concentrated essence. It has the taste of certain English beers, such as Scotch ale, is tolerably frothy, and very aromatic. The malt is taken in the form of a hot decoction, and may be mixed with milk. The beer may be taken hot or cold, and at dinner.

Frémy experimented with malt in that hopeless disease, pulmonary tuberculosis. Of sixty-four phthisical patients submitted to the remedy not one was cured. Five of them left the hospital so considerably improved that they believed themselves well, but auscultation proved that the cure was far from complete. In the remainder, the local state continued as before, the phenomena of auscultation remained unaltered; while in both cases the general phenomena of phthisis, viz., perspiration and diarrhoea, were modified for the better. But if, in decided

<sup>1</sup> One centigramme is equal to one-sixth grain.



phthisis, malt gave equivocal or no results, it was otherwise in suspected pulmonary catarrh, in incipient tubercles, in which cases it was employed with success.

A man of 25 years of age had a cough for many years, had visibly become thin, and upon auscultation and percussion presented clear signs of tubercular deposit on the apex of the two lungs. He had derived no benefit from the use of cod-liver oil, nor from any other of the usual remedies, when, by Frémy's advice, he was treated with beer and powder of malt. After two months of this treatment, it is attested by Frémy, that his cough had disappeared, respiration was more fully performed; the resonance had become less obscure; the murmur gentle and equal; his appetite was excellent; his strength and flesh had returned.

The decoction of malt produced the highest benefit in febrile bronchitis with hoarseness, and the symptoms were sometimes subdued in forty-eight hours. It was equally useful in chronic pulmonary catarrhs, and especially in those which produce grave dyspeptic accidents in old people. The malt in these cases rapidly excited the digestive powers, and cured the bronchitis. In dyspepsia, also, it was no less successful, after the gravely complication had been removed.

From such observations. Signor Frémy concludes that malt possesses a double therapeutic virtue; the one, laxative, demulcent; the other, tonic, restorative, analeptic. In fact, according to experiments by Bidault, if powdered malt be macerated for an hour in water at 75 cent., a liquid is obtained charged with syrup of starch (glucose), and what is more extraordinary is, that in this liquid is found free gluten. To this syrup of starch the decoction of malt owes its laxative power, and in that it would differ little or nothing from Hippocratic tisanæ;<sup>1</sup> but the gluten, which is free in it, and in a state which offers the greatest facility to being absorbed by the digestive organs, the diastase, and the bitter principle of the lupuline, give an analeptic virtue to the malt, and make an anti-dyspeptic of it. These united virtues render malt a valuable medicine, one of great utility in numerous cases, and which ought not to be surrendered entirely to vulgar medicine.—Translated by M. DONOVAN, for *Dublin Med. Press*, from *Lo Sperimentale*, Fas. vii.

6. *On Some Local Anæsthetics.*—MESSRS. DYCE DUCKWORTH, and RICHARD DAVY, record (*Edinburgh Medical Journ.*, July, 1862) the results of some interesting experiments made by them with certain local anæsthetics. They employed chloroform in the form of liquid and vapour; amonnia in vapour and liquid; chloracetization and ice.

They relate the following experiments made with *chloroform*:—

“Exp. 1. *Vapour.*—We applied the vapour to our arms in test tubes for periods of ten and fifteen minutes. In about three minutes a feeling of coldness was experienced in the parts operated upon, the skin becoming reddened. This sensation merged into one of slight irritation, but never amounted to pain. In from ten to fifteen minutes, on pricking the arm, sensibility was decidedly diminished, though not abrogated. Subsequently no local signs of irritation remained.

“Exp. 2. *Topical Application of Chloroform in the form of Liquid.*—We applied chloroform on lint, and in test tubes, to the backs of our hands and arms for periods varying from ten to thirteen minutes. Very soon an irritative action commenced in the part, gradually increasing and becoming slightly painful for about seven minutes, when the pain began to diminish, and a sense of heat remained in the part, with well-marked redness. On pricking the arm in one case, it was found totally insensible to the stimulus for the space of half a minute, after which sensibility gradually returned. In the other case, total anæsthesia was not produced—the application, however, being maintained for ten minutes only. The sensibility was nevertheless greatly diminished. In both cases per-

<sup>1</sup> Hippocrass is a kind of a spiced wine formerly much in use in England and other countries.—*Translator*.



sistent redness remains, the line of pressure being especially well-marked, and the parts continue super-sensitive if touched."

The following experiments were made with *ammonia*.

"*Vapour*.—Mr. Davy applied the vapour of the liquor *ammonia fortissimus* to the back of his arm for ten minutes; very slight tingling ensued. No anæsthesia nor signs of irritation.

"*Liquid*.—He next applied a mixture of equal parts of liquor *ammonia fortissimus* and water to the flexor surface of his forearm in a wide test-tube for ten minutes. Irritation commenced immediately, and increased gradually up to the time of removal, when perfect anæsthesia resulted. This, as in the case of liquid chloroform, quickly disappeared. The cuticle was found to be detached from the cutis vera. Irritation continued at the part for ten days afterwards."

With regard to *chloracetization* they say: This "was introduced by M. Fournié, who communicated his results to the French Academy not very long ago. He announces that the most perfect anæsthesia can be produced by mixing equal parts of chloroform and glacial acetic acid in a vessel, filling it half-full, maintaining the mixture at the temperature of the hand, and the room in which the experiment is performed at a temperature of 62° Fahr. The mixture is to be applied to the sound skin; the part to be acted on being marked off by a piece of diachylon plaster. In five minutes, under these circumstances, total anæsthesia is to be looked for. Upon the rapidity of its action, and the slight inconveniences occasioned thereby, are based the merits of this method. We were much interested in reading Mr. Fournié's announcement, and determined to give it a fair trial. We therefore complied with all his directions, and proceeded to try chloracetization. Two drachms of glacial acetic acid and a drachm and a half of chloroform were put into an ounce test-tube, warmed to the heat of the hand, and then applied to the skin of the forearm. In from ten to fifteen seconds, the most intense and violent smarting commenced in the part, increasing to such a degree that it was *perfectly insufferable*, and we were instantly compelled to apply active cold douching to the parts. The pain was excruciating; the cuticle was uplifted, and the surrounding parts deeply reddened. Some drops which escaped from the tube, lighting on the forehead of one of us, caused most violent pain. The smarting continued severe afterwards, and the parts assumed the appearance of urticaria. The pain was of a stinging character, intense and prolonged like that of nettles. This was due evidently to the presence of acetic acid, which produces symptoms quite analogous to its homologue, formic acid, an irritating ingredient in the glands at the base of the hairs in various species of stinging urticæ. Chloroform assists the action of the acetic acid, severe enough in itself, by favouring its absorption; and we know that a solution of extract of belladonna in chloroform acts with tenfold greater rapidity than an ordinary one. On the whole, then, we have no reason to be pleased with chloracetization. In the course of the white mark produced no pain was felt; this white mark differs from the white form of inflammation (due to capillary paralysis), in being caused by the raised cuticle. When deep pressure was made, acute pain was felt. We cannot conceive it possible for the mixture to be tolerated for five minutes on any part, as M. Fournié directs; our mutilated arms still bear testimony to its severity.

"*Generalizations*.—As to the physiological actions of these various articles, we are inclined to the belief that they do not produce their effects till an action, amounting to one of revulsion or counter-irritation is brought about; or in other words, that their anæsthetic effects are due, and contemporaneous in a measure, with a counter-irritative action, since a varying amount of irritation in all cases precedes the anæsthesia. We mean by counter-irritation the production upon the surface of a powerful impression, which seems to be capable of arresting and diverting, as it were, the attention of the system, and thus for a time checking or relieving a morbid process.

"Also, in the case of the human subject, we believe the local application of chloroform *in vapour* to possess the feeblest anæsthetic powers. *In the form of liquid* the effects, though transient, are much more strongly marked. The same remarks apply also to the liquor *ammonia*, excepting that the results obtained from *its vapour* were negative."

The experiments with *ice*, according to the plan of Dr. J. Arnott, were very satisfactory; and they say "it becomes a question whether employment should not be more frequently made of freezing mixtures, prior to *superficial operations* in surgery. Of course it can only be expected to act in superficial cases. In private practice it is especially a desideratum to abrogate pain, even in the minor operations; and in many of these the employment of chloroform by inhalation is hardly called for, or indeed warranted, since we find that statistics show a greater mortality to occur from the use of chloroform under these circumstances. We may here instance some operations which might be painlessly performed by this method:—

"1. The operation for *onyxis*; the toe being surrounded by the mixture till anæsthesia be produced.

"2. The removal of small superficial tumours. This division is a very comprehensive one, embracing the removal of malignant, cystic, benignant, and other growths.

"3. The opening of abscesses; both acute and chronic when superficial; including anthrax and furunculi.

"4. The operation for paraphymosis.

"5. The operation for femoral hernia; it being a common practice to apply ice locally to facilitate the taxis.

"In such cases we consider *ice* to be without doubt the most valuable form of local anæsthetic, from its admitting of simple application combined with the most satisfactory results."

7. *Phlorydzine*.—This neutral principle, which exists in considerable quantities in the bark of the root of the apple, plum, and cherry tree, is recommended (*Dublin Quarterly Journ. Med. Science*, Aug. 1862) by Dr. DE RICCI as being tolerated where neither quinine nor salicine, nor bark, can be administered without bringing on serious nervous excitement. The cases in which he has employed this article with most success are those of atonic dyspepsia in delicate females. He has also found it extremely well adapted to the treatment of young delicate children, or when recovering from whooping cough, infantile fever, etc. He has given it in these cases combined with syrup of phosphate of iron and manganese, and with syrup of iodide of iron. He gives it in doses of five grains three or four times a day for adults, and proportionally smaller ones for children.

He recommends a trial of this remedy "in every adult case where quinia is not easily tolerated, as also in every case where young children require a tonic treatment either in consequence of constitutional debility, or from the debilitating effects of some previous illness; it is much more easily taken than either bark, quinia, or salicine, the bitter being of an agreeable kind, and changing, as I said above, into a sweetish taste, with the flavour of apples. I have never known it to disagree, even in large doses of 10 grains three or four times a day; and I have, in very many instances, found it of great use where other tonic substances could not be taken.

"In prescribing phlorydzine it must be borne in mind that it is almost insoluble in cold water; but the addition of a very small quantity of ammonia instantly dissolves it; thus, by adding to an eight ounce mixture, containing a drachm of phlorydzine, a few drachms of aromatic spirit of ammonia, the fluid, which previously was milky, becomes perfectly clear; and the addition of the aromatic spirit rather improves the mixture than otherwise.

"If a small quantity of phlorydzine be previously added to the water its solv- ing power is increased, and the mixture will be of a beautiful blue colour, but it will not dissolve as much phlorydzine as when aromatic spirit of ammonia is employed."

8. *Carbazotate of Iron*.—Mr. H. N. DRAPER gives (*Dublin Med. Press*, Dec. 3, 1862) an interesting account of this new preparation of iron. The following are the more important points.

The mode of preparing it is as follows: Crystals of pure carbazotic acid are digested with an excess of recently precipitated sesquioxide of iron and water



at a gentle heat until the acid has disappeared. The whole is then transferred to a paper filter, and when the deep yellow solution of carbazotate has passed through, the residue on the filter is to be washed with hot water until the filtrate becomes colourless or nearly so. The washings being added to the original solution, the whole is evaporated to dryness at a temperature not exceeding  $212^{\circ}$ .

*Physical Characters.*—Thus prepared, carbazotate of iron presents the appearance of a reddish brown, amorphous mass, which, when reduced to powder, becomes lighter in colour. Its taste is astringent and intensely and persistently bitter.

The chemical constitution of the salt, Mr. D. thinks, is three equivalents of carbazotic acid ( $C_{12}N_3H_3O_{14}$ ) united to one of sesquioxide of iron.

*Physiological Action and Therapeutic Use.*—Carbazotic acid and its salts appear to possess very decided tonic and antiperiodic properties, and will most probably prove on more extended trial valuable and economical substitutes for quinine. In large doses the acid is poisonous; according to Taylor,<sup>1</sup> ten grains have sufficed to kill a dog in less than two hours.

"In the hands of Drs. Calvert and Moffat,<sup>2</sup> the carbazotate of iron has proved very successful in the cure of cephalalgia; the same authors have also employed with good effect the ammonia salt in the treatment of anæmia, intermittent fever, and hypochondriasis, and combined with opium and gallic acid in obstinate diarrhœa. They observe that while the acid itself is liable to produce cramps, its compounds with bases are free from this objection. The dose of the salts employed by these experimentalists was from .05 to .10 gramme ( $\frac{3}{4}$  to  $1\frac{1}{2}$  grain) per diem.

"More recently, Mr. Alfred Aspland,<sup>3</sup> of the Ashton Royal Infirmary, has, at the request of Dr. Calvert, tried carbazotic acid and its salts on a more extensive scale, and with a success which should encourage further experiment. Mr. Aspland treated forty severe cases of ague, giving the acid in doses of a grain three times a day, gradually increased to four grains at each dose. Some of the patients were relieved in forty-eight hours, while in two cases the treatment had to be continued for nine weeks. Mr. Aspland has also employed the acid with good results in diabetes, in anæmia and prostration from loss of blood in infantile marasmus, in rickets, and as a tonic in cases of debility, and where quinine is usually given; also in dyspepsia and hypochondriasis. He states himself as unable to decide whether the salts of carbazotic acid or the acid itself act better, and does not allude to any inconvenience resulting from the use of either beyond the peculiar colouration of the skin always attending the continued use of this remedy.

"The iron salt will probably be found from its ready solubility one of the best forms of administering carbazotic acid, and especially suitable as a substitute for the combination of quinine with ferric salts. It should, on account of its intensely bitter taste, be administered in the form of pills.

"A most remarkable result produced by the continued exhibition of this acid and its salts is that the skin and conjunctivæ of the eyes become dyed of a deep yellow hue, and the urine acquires an orange colour. This effect is, according to Drs. Calvert and Moffat, generally brought about in a time varying from two to sixteen days after the commencement of the treatment, or when about fifteen grains of the acid have been taken, and they are inclined to attribute the failure of Braconnot in producing this colouration, to the fact that he employed the potash salt, which is almost insoluble. Mr. Aspland, whose experiments have been cited above, finds that the skin becomes most easily tinged in robust subjects, and more in adults than in children. The urine, on the other hand, is more coloured in these cases. The skin in the best dyed cases clears in two or three weeks after the remedy has been discontinued.

"*Dose.*—From half a grain to two grains, gradually increased."

<sup>1</sup> On Poisons, p. 793.

<sup>2</sup> Pharm. Journ., vol. xvi. p. 167.

<sup>3</sup> Med. Times and Gazette, vol. ii., 1862, p. 289.



9. *Iodized Coffee of Hutet*.—The basis of the new iodine preparation is roasted coffee, a substance in daily use as an aliment, and with most persons a favourite, with some of the principles of which iodine combines in rather a considerable proportion. To attain the desired object, it suffices to mix the requisite quantity of iodine with a sufficiency of the watery infusion of coffee. The taste of the product does not reveal the presence of the new body. This, however, is easily detected by chemical reagents, when it is acted on as is directed for the examination of iodine in combination: for when tested with starch alone, there is no indication of it, it being necessary to treat the coffee previously with chlorine. The iodized coffee, which contains five centigrammes to every spoonful, a very large proportion, has neither colour, taste, nor smell different from ordinary coffee. The use of this coffee taken in doses of one or two spoonfuls a day, for several days in succession, did not produce any intolerance (*stanchezza*) of the stomach: a certain quantity of the iodine was absorbed, and its presence was recognizable in the urine of the persons who used it.

The employment of this iodized coffee can scarcely fail to answer its intention, it being possible to regulate the dose according to the wish of the physician. It may be taken with sugared water, or better with milk, in which case it becomes an integrant part of the alimentation.—*Dublin Med. Press*, from *Annali di Chimica Maggior*.

10. *Syrup of Carbonate of Iron*.—Mr. H. N. DRAPER gives (*Dublin Med. Press*, Dec. 3, 1862) the following formula for the preparation of this, which he considers a great improvement upon the usual form.

"Carbonate of iron readily dissolves in simple syrup, and as the sugar exercises a completely preservative influence upon the salt, this is one of the best forms in which it can be exhibited:—

Protosulphate of iron	2 ounces.
Carbonate of soda in crystals	2½ "
Water	2 pints.
Sugar	4 ounces.

"Dissolve the sulphate of iron and half the sugar in one pint, and the carbonate of soda and the remainder of the sugar in the other pint of water, mix the solutions, allow the precipitate to subside, and decant the supernatant fluid. Then rapidly wash the precipitate by decantation, using for the washing the whole of the following solution, but dividing it between two operations:—

Sugar	5 ounces.
Water	20 "

"Next digest the washed precipitate in a sufficient quantity of sugar solution of like strength, agitating it repeatedly during some days. When it has all dissolved add—

Sugar	38½ ounces.
Water	19 fluidounces.

"Boil to a specific gravity of 1.262 (at boiling point) and flavour with tincture of lemon or orange peel. This syrup contains about ten per cent. of carbonate of iron, is nearly colourless, and without unpleasant taste.

"*Dose*.—One fluidrachm."

11. *The Permanent Voltaic Current as a Therapeutic Agent*.—Dr. HIFFELSHEIM has published a work ("*Le courant Voltaïque continue permanent, &c.*") which contains an account of his important researches into the effects of "dynamic" electricity upon the body. The following are the most important conclusions: 1. It is not desirable, except for the purpose of *cauterization*, to employ any voltaic combination of which the metallic elements present large surfaces, for such an apparatus produces a current too strong and disorganizing. The surface of the zinc element should not be so large as eight-tenths of a square inch, at least with any more powerful exciting liquid than pure water; but the number of elements of the pile must be increased, in order to overcome the resistance of the tissues. 2. It is desirable that the passage of the current should be as little felt by the skin as possible. M. Hiffelsheim recommends that the conducting plates which are applied to the surface of the body should be

gilded, and that they should not be kept moist as was formerly recommended. 3. The current, imperceptible by the skin, may be appreciated by the interposition of a voltmeter, in the course of the circuit; and the author prefers for this purpose an apparatus for the decomposition of water. The amount of voltaic action may be computed, either by estimating the quantity of hydrogen produced, or the quantity of water which has disappeared, in the twenty-four hours. A current, thus carefully graduated, may be continuously applied during the greater part of each twenty-four hours, and its action in this respect is much more efficacious than that of ordinary "continuous" currents, which can only be applied for a short time.—*London Med. Rev.*, Oct. 1862.

12. *Electro-galvanism or Galvanic Electricity*.—Dr. W. H. SANDHAM, of Cork, extols (*Dublin Med. Press*, November 12, 1862) the therapeutic powers of galvanic electricity. He says: "From my experience of electricity, I have come to the following conclusions: 1st. Whenever, in the treatment of disease, an antispasmodic or calmative, a soporific, stimulant or tonic is indicated, galvanic electricity ought not to be dispensed with. 2d. It is valuable as a means of diagnosing disease. 3d. It is a very useful agent to put the system in the best possible state to receive and be acted upon by medicine. 4th. No matter whether the case suited its application or not, in no instance did I see the slightest unpleasant symptom or derangement, that could not be at once remedied, follow its administration.

"I have used it in colic, neuralgia, sciatica, *delirium tremens* (by the by a disease for which I have not yet read or heard of its being used or suggested by any one else), fever, or at least cases with every symptom of fever present, dentition, whooping-cough, convulsions, lumbago, burns (to relieve the pain), headache, toothache, gout, cerebral disturbance, the latter so interesting and inexplicable, and in all with decided benefit. The length of time for which a patient suffered seemed of no serious moment when it exactly suited the case, whether the malady was recent or of long standing; it indicated more or less control in every case in which I tried it. In fine, could I but succeed in making permanent the good results that in almost every case I have for a time produced, I would look upon galvanic electricity as nothing short of a wonderful remedy." \* \* \*

"In my humble experience, electricity in its vibratory, intermittent, or shock form, is not near so generally useful, except in local paralysis, as what Dr. Golding Bird calls the single current, but what is better described as '*the continuous current without shock*.' This, in my mind, is the great tonic, calmative, antispasmodic, and antineuralgic electric current, whose beneficial results are apparent, in many cases, in a few moments, and does not, as is the case with Dr. Neligan's shock current, require a long time for the development of its effects, as my cases will incontestably prove. Dr. Golding Bird, Physician to, and Lecturer on Therapeutics at, Guy's Hospital (*vide Lancet*, vol. ii. xvii. 1851), says: 'Shocks are not required to develop physiological phenomena or therapeutic effects, as the laborious researches of Dr. Marshall Hall have long since proved, and it is only to the mild continuous voltaic current that we must look for a vast development of therapeutical influence.'

"I both use and look upon electricity, in whatever form it may be administered, as an auxiliary—but in my mind a very powerful auxiliary—to the other modes of treatment. Let it not for one moment be supposed that I look upon electricity as a universal remedy. No. I treat my cases medico-galvanically, invariably giving the medicines which in my opinion are indicated in each case. Having never read or heard of galvanic electricity being recommended or suggested as a remedy for the cure of dipsomania or *delirium tremens*, I beg to draw particular attention to the four first cases; they were treated by '*the mild continuous current without shock*,' as administered by the aid of '*Pulvermacher's apparatus*;' I do so in the hope that other gentlemen may, in a short time, give us their experience, and thereby still further establish or set aside the use of galvanism in this dread disease. You may rely on the faithfulness of my report; indeed, you have (Case 3d) reported and certified in the words of one of my patients, and as it is the history of the only case treated by me with-



out medicine of any kind, I refrain from recording it in any other form than that of the certificate itself. It is true to the letter, and describes accurately all that I did for him.

"The 'wet brain' and the 'congested brain,' induced by alcoholic poisoning, are generally treated by large doses of opium, with or without depletion, or, as advocated by some, on the expectant plan. We all know how near to death perseverance in large doses of the former oftentimes bring the patient. Now, if galvanism would enable us to cure delirium tremens, by giving with it smaller and consequently safer doses of opium, it would be a desideratum; but I hazard the opinion that opium and galvanism act in antagonism to each other, and would rather, therefore, use the one without the other. Dipsomania or delirium tremens is a state of things induced by *over excitement* or over stimulation of the nervous system."

### MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Further Observations on Typhus and Typhoid Fevers, as seen in Dublin, especially the united form which they assumed during the first half of the year 1862.*—In 1860, Mr. HENRY KENNEDY read before the Royal Medical and Chirurgical Society a paper (see No. of this Journal for July, 1860, pp. 237—9), the object of which was to show that typhus and typhoid fevers were the result of a common poison. In a late No. (August, 1862) of the *Dublin Quarterly Journal of Medical Science*, he has published the results of his additional experience; and gives the details of forty cases illustrative of the types of fever prevailing in Dublin the last two and some former years. These cases present examples "of typhus in both young and old;—of typhus without spots;—of typhoid with none, with one or two, or with an extensive crop of them;—of typhus with the brain wonderfully free;—cases of typhoid, but more numerous, the same;—of both typhus and typhoid in which the state of the tongue and parts about were identical from sordes;—many cases of either type with the chest not engaged at all, or so slightly as not to call for treatment;—instances of both types with and without tympany;—cases of either kind entirely free from hemorrhage; a freedom remarkable when compared with former years;—and lastly, the modified types of fever which the present year has disclosed."

The conclusion, Dr. K. says, "at which, after the fullest consideration of this question, I have arrived is the same as that of two years since; but with still stronger convictions on the point. *I believe that the two fevers known as typhus and typhoid are the result of a single poison; and that no other hypothesis can explain so well all the difficulties of the case.* I consider, further, that those who hold for a plurality of poisons, are bound to explain the facts already given in this paper. They should tell us why the symptoms of those two affections so often run the one into the other; why the same type of fever, whether typhus or typhoid, presents such marked contrasts; why typhoid may assume the characters of putrid, ataxic, or inflammatory fevers; febricula, meningitis, &c., and still be typhoid all the time; and this, be it observed, is described by those who believe in the two distinct poisons. They will also have to answer the argument taken from analogy, and tell us if scarlatina affords the most marked contrasts, why fever should not do the same; also how it has happened that symptoms which one writer considers essential to the natural history of typhoid, are ignored or made little of by another. And, in the last place, an explanation must be given of what has occurred in Dublin this year—that is the union of typhus and typhoid in the same subject. Now one and all these points may be satisfactorily explained on the idea of the existence of but one poison. I confess, however, it appears to me impossible to explain them on the theory of two. But, if we admit two, why not more; for assuredly there are other types of fever just as distinct as typhus is from typhoid. And this leads me to notice the third type



which prevailed this year in Dublin, and particularly amongst the middle ranks; I mean gastric fever. I hold that it is essential it should be distinguished from typhoid fever, with which it has the nearest connection; were it for no other reason than that its treatment is very different. Several cases of it have been already detailed; but, except to notice it as a special type of fever, I am not about to speak of it further here. It was, I believe, to this type of fever that the cases given, which might fairly be called anomalous, are chiefly to be referred."

14. *Treatment of Typhoid Type of Fever.*—Dr. H. KENNEDY, of Dublin, expresses the opinion (*Dublin Quarterly Journ. Med. Science*, August, 1862) that the treatment adopted by some is not of the specific kind which this affection appears to him to require. "We know," he says, "that of late years anything of what would be called active treatment has been most materially modified, if not quite given up. Thus in Bartlett's work, which appeared in 1847, the measures recommended included the regular antiphlogistic treatment; whilst five years later Flint speaks of much milder measures being adopted. The late Dr. Todd, of London, we know, strenuously recommended the stimulant plan; which, it must be allowed, he carried as far as any discretion would justify; and in a published lecture of the present year, Dr. Warde, of the Dreadnought Hospital, London, has advocated the leaving the disease very much to itself. Now I mention these plans, not to criticise them; but to state that each, in its turn, will be found useful; and that no physician who has fever to treat on the large scale, will bind himself to one or the other. Every single instance must be treated by itself, and symptoms must be met as they rise. If this be done, I believe the typhoid type to be the most amenable of the many forms of fevers, provided it be seen in an early stage of the disease. Speaking of it as I have generally seen it, I would say it is not a fever to be left to itself; and several of the cases which have been detailed prove this; for there was no amendment till treatment was put in force: on the contrary, some of them were going from bad to worse. When then the case calls for it, and this is to be learned from the local, as well as the general symptoms, I never hesitate to have leeches applied over the right iliac region, followed by a poultice; taking care the bites do not bleed too long. A more common plan, however, is the application of a blister to the same part: nor can I doubt the great value of such means, and believe it is not as generally used as it might be. The blister may be repeated with the best results; nor should we ever forget that the local disease with which we have to contend is very apt to be slow in yielding; that a relapse may readily occur, and when this happens the disease is rendered very much more grave than it was. Our object, in truth, is to prevent ulceration; for if this once occur the chances of recovery are materially lessened. I state this because a recent writer speaks of the disease as if ulceration must necessarily take place. I believe this is an erroneous way of considering the matter; and that we can, by treatment, anticipate, and so prevent it. '*Obsta principiis*' is all important here, and a principle never to be forgotten.

"Of the internal treatment I have had no occasion to change from what was spoken of in the former paper. As an astringent I find the dilute sulphuric acid, in the proportion of one to three drachms to the eight ounce mixture, by much the best remedy. No other of the class of astringents seems to me to act at all so satisfactorily; and it can be modified, with the greatest nicety, to the demands of each particular case. I have often seen medicines, such as chalk, gallic acid, lead and opium, unavailingly used; and then from the moment this acid was given the patient began to amend. But it is not to be used without discretion; for it may check the diarrhoea too suddenly, and the chest or brain may so become engaged: hence, it is best to begin with a moderate dose, and increase if the necessity arise. The rule is that the diarrhoea is to be gradually lessened; not suddenly stopped. In mild cases I find the acid infusion of roses a very suitable medicine; and, when there is pain, from two to six drops of laudanum, in each dose of the mixture, commonly answers well. The sulphuric acid, I need scarcely add, is the favourite remedy with Huss. When there are

signs of irritation in the colon, and more especially when there is tenesmus, an anodyne enema acts like a charm.

"Dr. Warde, to whom I have before alluded, speaks of salines as being suited to the treatment of fever of the typhoid type. Such may answer in London; but with us in Dublin they would be positively injurious. Their effects on the healthy frame are quite too powerful to suppose that they would not act equally so on the frame weakened by a disease like fever; of which the best treatment now avowedly is, what may be called, conservative. To the class of salines I would add the carbonate of ammonia, which I believe to be too indiscriminately used; and which, in my own experience, does not suit the type of fever of which I am speaking. I have known a very few doses of it bring on diarrhoea; not only in this fever, but in many other diseases; and, if my memory serve me right, I have seen a similar remark made by Sir Benjamin Brodie; and would hence hold out a warning against the use of either salines or alkalies in all diseases of a lowering type.

"There is a class of cases of the typhoid fever in which, without any interference, the diarrhoea suddenly ceases; whilst the chest, or it may be the brain, gets as suddenly involved. All such I have found turn out most critical, and I have latterly been in the habit of keeping up, for some days, a discharge from a small blister, usually put on the chest. In this way I think I have seen very beneficial results follow. It seemed as if the poison were, in part at least, got rid of by the system; and all went smoothly afterwards. The point, I believe, is worth bearing in mind, and so is mentioned.

"In the last place I would notice a point which was also spoken of on a former occasion. Are stimulants, as a class, used too indiscriminately? I think they are. It seems a very general impression that if they are to be used, it matters little of what kind they are: hence, brandy, wine, and beef tea, are constantly spoken of as being given to the same patient. Now I do not deny that all may be required at the same time. But I do say that in numerous instances judgment is to be exercised; for most assuredly the effects are not the same; and when their different composition is considered this need not excite wonder. Thus, if we compare wine and beef tea, the former, contrary to what might at first be thought, may be given with much less risk than the latter; and I am sure I have seen cases where secondary inflammations—in the chest amongst other parts—have been lighted up by want of attention to the very point of which I speak. Though much more might be said on this subject, enough has been advanced for my present purpose.

"In conclusion, I would observe, that the class of mixed cases, as they may be well called, require even more than the ordinary amount of attention. The fever becomes so heavy in many of them that the abdominal symptoms are very apt to be masked, and so may readily be overlooked. In such cases, too, it may be requisite to direct our treatment at one time to the chest, or again, to the brain; and, in some of the cases given, a combined treatment had to be adopted."

15. *Epidemic of Typhus in Iceland*.—Dr. JOHN HJALTELIN gives (*Ed. Med. Journ.*, Sept. 1862) a very interesting account of a dreadful epidemic of typhus, which began in the northern part of the island of Iceland during the winter of 1857–58, and was thence apparently communicated by contagion to the eastern, western, and southern districts of the country. During the winter of 1857, about ninety cases of this fever came under Dr. H.'s observation, and it presented sometimes the character of exanthematous typhus, and sometimes of typhoid or "typhus abdominalis;" but although the sickness abated in the following summer, it again appeared in the autumn of 1858, and raged during the whole winter of 1859, and did not even cease in the summer months of that year, but continued its ravages through all the seasons of 1859 and 1860. In those two years no less than 900 cases came under Dr. H.'s treatment, out of a population of about 10,000 inhabitants, although of this number there were many patients that he had no time to register. When the fever broke out in a farm or cottage, it generally attacked one person after the other, until most of the inmates of the house were infected; and it very often happened that strangers



stopping in a house thus infected, contracted the disease. It was evident, therefore, that it was highly contagious.

In the beginning of 1860, the same fever was very often accompanied by malignant dysentery; and at this time also, when by far the greater number of the infected were suffering from typhoid fever, Asiatic cholera made its appearance, and was accompanied by rice-water evacuations and cramps, but happily, it was only sporadic, and did not spread by contagion. During the last winter, 1860-61, the typhus fever was decreasing, although it still displayed its former malignity, and was attended, especially in the eastern part of this country, by great mortality. In some parishes of this part of Iceland, one-tenth of the inhabitants fell victims to the disease, a catastrophe which seems attributable to there having been an entire deficiency of medical men, and medical aid. The same phenomenon was observed in many other parts of the country, affording a strong argument against those who are of opinion that medical aid has very small influence on the mortality of malignant fevers.

In the last winter mentioned, about 122 cases of typhus and typhoid fever came under Dr. H.'s treatment, and although the disease was becoming more and more sporadic, it still preserved the same characters of malignity and contagion as it had shown in former years. In the beginning of the spring, cases of malignant cholera seemed to gain ground, and were generally more common than the typhus itself, but the disease did not spread, and was limited to some fishermen's huts.

As to the probable causes of these malignant diseases, Dr. H. states, that in the years 1856-57, an epizootic—common sheep scab—visited Iceland, and it was determined to get rid of this epizootic by slaughtering all the infected sheep, which was done in spite of Dr. H.'s remonstrances and predictions of the evils which would follow. No less than 200,000 sheep, many of them quite sound, fell victims.

Dr. H. had foretold, he says, "that this proceeding would most likely lead to fearful consequences, especially on account of the great masses of meat heaped together in the small storehouses that are commonly attached to the Icelandic farm, the single apartment of which is used as a parlour, dining-room, and bedroom. I supposed—and experience showed that I was right—that my countrymen's uncleanness, and their bad method of salting meat, would lead to the most dangerous consequences; and that so protracted a deprivation of sheep-milk, butter, and cheese, might not only be attended by a deficiency of healthy and nourishing diet, but also give rise to famine.

"The sheep killed amounted in number to about one-third part of those contained in the island, and were intended to supply twelve months' nourishment to about 10,000 men. So convinced was I of the injurious consequences of this foolish enterprise that I wrote to the Board of the Sanitary College at Copenhagen, predicting what would happen if the sheriffs of this country—who were its authors and executors—were not to be deterred from its prosecution. The Danish government upon this enjoined them to desist; the order, however, arrived too late, the slaughter having been already executed during the autumn of 1857, and the following winter.

"Meantime, my predictions were realized. People coming from the country where large stores of salt provisions existed in great abundance, informed me that the odour of rotten meat was in many houses insupportable; they declared that they could neither stay nor sleep in them, and a short time afterwards I heard that typhus and typhoid fever had broken out in several parishes of the north, and both these diseases were subsequently extended by contagion to the southern districts.

"During the winter the peasants came down from the highland districts to the fishing places near Reykjavik, and the surrounding districts. In many of these persons the malady already existed in its latent form. On arrival, they sickened and spread the fever in the fisher cabins, which were the more susceptible to its influence, as they had been overcrowded during the winter of 1858. From this time the disease advanced from hut to hut, until the majority of them were infected by its virulence; the most crowded huts were of course infected first and most severely; but by and by the better houses became infected also, towards



the end of the winter of 1858. The mercury sank to 4° below zero, Fahrenheit, and continued there for several weeks. It was very remarkable to see how the typhus was for a time arrested by the severe cold, but re-excited when the temperature grew milder. This fresh outbreak continued until the end of May, at which period it ceased or abated, to reappear in autumn."

16. *Disinfecting Treatment of Typhus and Typhoid Fever.*—Dr. JOHN HJALTELIN gives the following as the indications for his disinfecting treatment of typhus and typhoid fever, and which he employed with advantage in the terrible epidemic which prevailed in Iceland from 1857 to 1860. These are:—

"1st. To prevent overcrowding in the farm-huts and cabins as far as possible, where this in any way could be done.

"2d. To have the windows thrown open as often as the season would allow it, and make holes for ventilation where this could be most effectually done for purifying the air.

"3d. To destroy every offensive odour about the sick, and even the smell of the sickness itself.

"4th. To introduce cleanliness in every respect.

"5th. To clean the bowels of the patients as soon as possible in an effective and perfect manner.

"6th. To destroy instantly the odour of evacuations from the patients.

"7th. To use internally disinfecting medicines in a bold and consequent manner.

"8th. To support the strength of the patients by easily digestible but nourishing foods.

"The first indication could very seldom be fulfilled, but it was done whenever possible. The second indication was for the most part tolerably executed, especially when the people got afraid of the contagion, and therefore dared not shut their windows, but followed for the most my advice in opening them.

"The third indication was, after the lapse of some time, when the people had seen the good effect of it, boldly executed; and the remedies applied to this purpose were the aforesaid disinfecting compounds, viz., chlorine-gas, Sir William Burnett's chloride of zinc solution, iodoform, and charcoal.

"The fourth indication met with many obstacles, and could seldom, on account of bad habits or poverty, be executed as it ought to have been, or would have been, if cleanliness were a more common virtue in this country.

"The fifth indication was fulfilled by administering a full dose of calomel, sulphate of magnesia, or sulphate of soda, all in large and repeated doses, according to age and other circumstances. The calomel was generally given in a dose of ten to twenty grains every day, or every second day, until the fetid odour of the dejections was gone. As the effect of this treatment, I may mention the lessened tenderness in the right iliac region and in the whole abdomen, lowering of the pulse, diminished headache, and more clear consciousness of the mind, when from the beginning there had been stupor or coma. In some cases sulphate of magnesia was given in a dose of a half or one ounce, until I was pretty sure of the bowels being well cleaned, and all bad odour of the evacuations had disappeared.

"In order to execute the sixth indication, sulphate of iron was generally put into the water-closets before they were used; but, in some cases, chloride of lime was used for the same purpose. By these disinfecting compounds no odour of the dejections could be felt, although the patients had very large and noxious-smelling evacuations. I think that every one who knows the small and dirty Icelandic huts will agree with me that this is a quite indispensable proceeding to purify the air, where many patients are crowded together in small rooms. This method seldom failed to produce a happy effect upon the patients. The seventh indication was executed in several manners. If the patients were supposed to have strong and healthy respiratory systems, they were made to inhale iodoform or chlorine gas mixed with the air. The former remedy was most frequently used, and the good effect of it (according to my experience) is undeniable. It was in some instances given internally, dissolved in ether, and seemed

often to produce a well-marked relief, and especially it was observed to check coma and delirium. The chloride of lime was never used internally, but the patients were often made to inhale the vapour of a concentrated solution of chloride of lime, which was managed in this manner: Linen strips were dipped in the solution, and hung up to dry by the bedside, which caused a continuous chlorine gas exhalation in the room. By patients with weak and irritable lungs the iodoform was always preferred to the chlorine gas.

"The eighth indication, namely, to support the strength of the patients, was fulfilled by nourishing food and decoction of bark; and this was sometimes resorted to in the third stage of the fever, in order to prevent death from exhaustion. It seems to me that many physicians are too much afraid of using nourishing diet in typhus fever, forgetting the great loss of nitrogenous compounds which this sickness, by the large excretion of urea, produces. I have seen many typhus patients in this country, who, as soon as they were able, took very nourishing food, which would never be allowed in the hospitals of Europe, recover speedily; and, comparing this fact with the languishing and protracted recovery in the hospitals, I conclude that nourishing food in the latter stages of this fever is quite indispensable.

"As to the result of my treatment, I am obliged to make some remarks, and in so doing it is necessary to mention the ravages of the typhus fever in our country during the years 1859 and 1860. In the northern part of this island, and on the western shores, a good many patients fell victims to it; so that in some parishes the mortality was no less than 1 in 16, or even 1 in 14, of the whole population. In some parishes every tenth inhabitant died from the sickness; and in many places, where no medical aid could be obtained, the mortality of the whole population for the year 1860 was 1 in 15 or 16. At the same time the mortality for the town of Reykjavik was only 1 in 29, and for the adjacent parish 1 in 27. Being the whole time obliged to go from one hut to another, and, besides, to make many visits in the neighbouring country, it was impossible for me to calculate the number of my patients in a perfect and accurate manner. I only know this (as aforesaid), that during the years 1858-61 I have had a number of not less than 900 cases of typhus and typhoid fever under my treatment, and that out of this number I have lost no more than 30 patients from this disease. In a neighbouring parish the number of the patients was 95, and out of this number only two died. I am, therefore, inclined to believe that if my disinfecting treatment had been carried on under favourable circumstances, the result might most probably have been still more conspicuous.

"It is, I think, an acknowledged fact, that the eruptive and enteric typhus are dangerous fevers; and, although some physicians believe that the eruptive typhus is less dangerous than the enteric typhus, we have in this country, during the last epidemic, proofs of its malignity, which led to the enormous mortality of 1 in 6 of the inhabitants in some places. Almost the same fatal mortality as happened here, occurred during the last epidemic in the Westmanna Islands. The physician of that place fell at the outbreak of the epidemic a victim to the typhus, and out of 400 inhabitants 40 died afterwards. In some parishes in the east part of this island it is related that the mortality sometimes rose to 1 in 3 of the affected.

"Mortality of typhus is, as we know, very variable, according to the nature of the epidemic constitution and other circumstances. In Hooper's *Physician's Vademecum*, fifth edition, it will be seen, page 274, that the mortality of adynamic fevers in Edinburgh and Glasgow has very often been 1 in 10, and even 1 in 6 or 7, or as great as in some parishes of this island during the last epidemical typhus. From several articles in the *Lancet* I learn, moreover, that the mortality of typhus in the hospitals of London is very often found to be 1 in 10, or even 1 in 8; and, according to Dr. Trier, of Copenhagen, the mortality of typhus and typhoid fever in that city has generally been 1 in 8, or sometimes 1 in 6. In Germany and France it is well known that the mortality from malignant fevers in the hospitals is generally 1 in 9, and sometimes 1 in 7; but in Russia, namely, St. Petersburg and Moscow, it is still less favourable, being in some epidemics 1 in 5.

"It is generally accepted now-a-days, that physicians, before the determina-



tion on the adoption of a particular method of treatment, should always first inquire what would happen in this case if no remedies whatever were employed; or, in other words, if the patients were altogether left to nature, that is, to the efforts of their own constitution. Many renowned physicians will say, 'The living machine, unlike the works of human invention, has the power of repairing itself. It contains within itself its own engineer, who, for the most part, in by far the greater number of cases, requires no more than some very slight assistance of our hands,' etc. This is the fashionable talk of the most celebrated physicians in our time; but I have always thought that this principle is of as little use to medicine as it is unworthy of a science which now claims the name of an 'exact learning.' But fashion has a strange power, and thus this 'inactive treatment' is become a general rule amongst the physicians of Europe in our century. In the meantime, it seems to me that the modern medicine has by this principle involved itself in some contradictions, or why do we then cure scurvy with large doses of citric acid, inveterate syphilis with large doses of iodide of potassium, intermittent fever with bark, rheumatism by repeated doses of bicarbonate of potassa, lithic diathesis and oxaluria with large doses of carbonates and strong mineral acids? Why do we at all give remedies for poisons? And if we give remedies against mineral and vegetable poisons, why not also for organic poisons? I hope that very few physicians will now-a-days deny the origin of malignant fevers from organic poison; but, if this is accepted to be true, why should we then not try by all possible means to destroy these poisons? Pure air is, no doubt, the most common destroyer of organic matter, and it is, I think, on this account that the modern ventilation has done so much good to prevent and cure malignant fevers. We may, I hope, go still farther, and clean out the organic poison from the human body by a right use of the principles of modern chemistry; but, leaving the destruction and elimination of fever poisons from the body to nature's efforts alone, we may, I think, very often be mistaken and disappointed.

"Regarding the melancholy ravages of our epidemic typhus when it was allowed to run its own course, or whenever the patients were unaided by the medical interference, I can hardly doubt that my positive disinfecting treatment has been of some value, and I should indeed feel very happy if these few remarks could induce some of my dear colleagues to give it a fair trial."—*Ed. Med. Journ.*, Sept. 1862.

17. *Treatment of Delirium Tremens.*—The No. of the *Edinburgh Med. Journ.* for November last, contains a very interesting paper by Professor LAYCOCK on the diagnosis, prognosis, and treatment of delirium tremens. In this paper Prof. L. advocates, as he did four years since (Oct. 1858) in the same journal, the expectant and rational method of treatment. His views with regard to the medical treatment are marked, we conceive, by good sense. "Since a case of delirium tremens tends," he says, "independently of active remedies, to a favourable termination in from four to fourteen days (the cases I have treated have averaged six days' duration), the great indication of medicinal treatment is to favour this tendency in *expectation* of early recovery. It is favoured by preventing as well as by helping. The natural impulse to interfere by the aid of narcotics and stimulants, or by mechanical means of restraint, has to be checked. This is best attained by adopting a plan of treatment which occupies and gives confidence to the attendants and friends, and at the same time calms the patient. The effects of medicinal agents or drugs used to this end cannot be satisfactorily determined in many cases, because we cannot say, when calm and sleep come on, how much is due to the drug, how much to the diet and regimen, and how much to nature; so that all experience upon this point is somewhat doubtful. It is certain, however, that drugs have and do exercise an influence over the intensity of the symptoms, although they may not either cause sleep or shorten the duration of the disease. Of these, opium and its salts, tartar emetic, digitalis, chloroform, purgatives, alcoholic and other stimulants, are examples.

"*Alcoholic Stimulants.*—These are available in all asthenic forms of delirium, however caused. They have been hitherto administered in the methystic form, chiefly on the theory that the sudden withholding of the habitual stimulant is



the exciting cause of the delirium. The depression of the nervous system may be partly due to the want of the accustomed stimulus; but all experience shows that it is still more commonly due to morbid causes of a more general character, such as induce a feverish cold, a fit of indigestion, of the gout, or the like. Without such concauses, abstinence from habitual stimulants will not excite delirium tremens. The habitual drunkard distinguishes the depression which commonly succeeds to stimulation as 'the blues;' 'the horrors' is a different thing, and occurs when any indisposition induces loss of appetite, languor, disturbed sleep, and other symptoms of the class. It is the depression thus induced by this same morbid cause which constitutes the first stage or simplest form of delirium tremens. The intensity, therefore, is partly, at least, determined by the kind of indisposition or acute affection; and it is this we have to remedy. The indications, therefore, for the administration of alcoholic or habitual stimulants must be drawn from the then condition of the patient, just as in other diseases in which remedies of this class are useful. When food has not been taken for several days, and the hallucinations are of a frightful or distressing kind, and especially when the pulse is very quick and feeble, the first sound of the heart heard indistinctly, the tongue coated, œdematous, and flat, or indented at the edges, wine and brandy may be administered medicinally with advantage. Sometimes this state of prostration is due to the combined influence of drinks and opium or its salts, or to opium alone. In either case, alcoholic stimuli may be given." \* \* \*

*"Opium and Salts of Morphia.*—The influence of these drugs is very various; in one class of cases having the most beneficial effect, in another increasing greatly the excitement and delirium. The like difference in effect is seen when given in cases of melancholia and mania, for which they have been freely prescribed. In some of these, as in some cases of delirium tremens, very large, and, under ordinary circumstances, poisonous doses have little effect. This tolerance of opium in certain forms of delirium tremens has probably led to its heroic administration in cases generally. A question has arisen, whether, in those thus treated which terminate fatally, the death is due to the drug or the disease."

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 "My own conclusions on this point are, that the combination of alcoholic drinks with opium tends to render the patient more tolerant of the drug; that in some drunkards its operation is so much delayed, that when given in repeated doses, there is a cumulative effect produced; that it is never a wholly safe practice to administer it for the express purpose of procuring sleep, nor as a stimulant in more than the ordinary doses; and that it is always prudent to watch the effect of the remedy on the pupils in exciting contraction. How far various other states of the encephalon may antagonize the drug, and for how long, we never perhaps can say, but that there are such states variously induced is one of the most certain things in physic. We have it in cases of both mania and melancholia, in certain kinds of neuralgia, in traumatic tetanus; and it is believed that it may be induced by henbane, belladonna, and other drugs. And it is to be remembered that the antagonizing state may be so transient as to leave the brain exposed to the full action of the poison before it is eliminated—nay, by its action on other viscera may delay the elimination." \* \* \*

*"Camphor.*—It is not easy to determine beforehand when opium or its salts serve only to induce greater prostration and distress; most generally, however, the patient is of a nervous habit with a florid complexion, or at least has had, and is of a neuro-vascular diathesis. In cases of this kind where the exhaustion is great and morphia inadmissible, camphor proves sometimes useful, in from two to three grains every three hours, or the carbonate of ammonia combined with camphor and henbane.

*"Mental Hypnotics* are singularly successful in those cases in which there is a morbid apprehension as to sleepless nights, and a hypochondriacal anxiety for sleep. It is often the morbid feeling alone which prevents sleep: this is proved by the circumstance, as repeatedly witnessed in my practice, that any simple remedy administered to the patient so as to impress him with the conviction that it will cause sleep, is followed by sleep; and sometimes, when convalescence is approaching, by as prolonged a sleep as if a powerful narcotic had been taken.

In one case of this kind the long sleep which followed upon a placebo excited alarm.

*"Tartar Emetic.*—This drug, like opium, has been administered in large doses in delirium tremens; the effect of which, I venture to say, can only be to excite gastric or gastro-enteric inflammation. Now, it is probable, counter-irritation of the gastro-intestinal mucous membrane is very beneficial in some cerebral affections. Perhaps calomel sometimes acts in this way in acute hydrocephalus; but in the majority of cases of delirium tremens this result is attained by a simple purgative, and care should be taken to avoid irritating the already irritated stomach. Tartar emetic, therefore, should be administered in solution, and in doses not exceeding 30 minims of the liquor of the Pharmacopœia. It is chiefly indicated in those cases in which there is some inflammatory complication, and especially pneumonia, however trifling. It is advantageous, too, at an early period in those in which the whole character of the disease is more sthenic, and the mental disorder more nearly approaches insanity or mania. In these the patient is less apprehensive and timid; often loquacious, suspicious, and inclined to be aggressive upon slight provocation; he has notional delusions more predominantly than hallucinations of the senses; his nights are disturbed, but not wholly sleepless; nor has he tremors of importance. His appetite comparatively with the asthenic form is little impaired; his tongue but little coated, and when projected rather pointed and firm, than flat, flabby, and tremulous. His skin, too, is rather hot, or at least natural, than cool and moist; and the pulse is less round, undulating, and quick. Cases of this kind are intolerant of stimulants and opium even in small doses, these being apt to change a 'cantankerous' kind of delirium into a raving or destructive sort; whereas 20 to 30 minims of tartar emetic liquor, given every three or four hours, calm, or at least do not aggravate. When, however, there are symptoms of depression, especially in a young person, and the history is that of causes of exhaustion, laudanum in 5 to 15 minim doses is a useful stimulant, in combination with 15 to 20 minims of the liquor. This has long been found useful in ordinary maniacal delirium thus arising.

*"Emetics, Purgatives, and Stomachics.*—Methods of treatment by purgatives, quinine, and tonics have been recommended. The patient before coming under treatment has usually tried remedies of this class, especially bitter drugs, either as bitter tinctures, 'the bitters' of the dram-shop, or in bitter beers. The effect of these is to modify the symptoms, and especially to induce muscular twitchings, tremors, and even slight convulsive attacks. Very often in such there has been a total loss of appetite, and no food has been taken for several days. In some, food is vomited, in others, if retained, it causes pain, because of the state of the mucous membrane of the stomach. This is often, in fact, congested and inflamed. Hence the dietetic and medicinal treatment of gastritis is indicated; constipation and hepatic congestion are not uncommon complications, and indicate a suitable aperient. Podophyllin, calomel, colocynth, and henbane, castor oil, salts, and senna, and Gregory's powder, were the ordinary remedies of this kind used in the infirmary. Of the new drug as a bilious purgative I can speak favourably. Podophyllin was prescribed in several cases in combination with cannabis indica or henbane, with good effect. The following formulæ were used: R. Podophylli, gr. ij; pulv. cinnamomi co., extract hyoscyami, āā ʒ; mucil., q. s. The mass to be made into four pills, of which one to be taken every six hours until the bowels were moved. In another formula, gr. viij of powdered ginger, and of extract of cannabis indica were combined with gr. iij of podophyllin, and made into six pills. The purgatives, of whatever kind, were always given at the commencement of the treatment and not afterwards. Emetics were never tried, and were never indicated except in cases of drunkenness. Stomachics were prescribed in a few cases at the termination, when convalescence was established, but were rarely needed.

*"Digitalis and Chloroform.*—There is evidence of the calming effect of digitalis, but it is of the vaguest kind. There is no indication of the class of cases in which it may be safely prescribed, nor are we clearly informed whether in the cases reported there was not renal or cardiac disease, or the complication of drunkenness or of narcotization. I have seen it tried in one case, in which, in



consultation with a medical friend, it was resolved to try a half ounce dose of the tincture. The patient had had a drinking bout, and suddenly became aggressive and destructive, tearing, pulling down, and burning, and striking and throwing things at the attendants. There was no loquacity: the patient rarely spoke, but sat in bed, rolling up the bedclothes, tearing off his clothing, and throwing food and drink in the faces of those who offered it. This he did with his dose of tincture of digitalis, after drinking one-half of it. The case was one in which the expectant treatment was thereupon tried with entire success—reason being restored and convalescence established within the week. Chloroform has been administered in very violent cases with advantage: when exhaustion is likely to come on from the constant raving and struggles of the patient, it may save life by saving strength. Such, however, are rare, and are more frequently met with as the result of heroic treatment than in the ordinary course of the disease.

“There were two or three cases of puerperal mania (so called) admitted into the Infirmary and Milnholm Asylum during the summer, and were treated on the same principles as the cases of delirium tremens. One of these brought to the infirmary had fallen into a raving delirium after taking morphia. They were, in truth, acute cerebral affections, of which parturition, or the puerperal state, was the exciting cause, and recovered within a short period. How far albuminuria is a cause or an effect of the morbid state of the encephalon, in this class of cases, has yet to be determined, although it is commonly assumed to be the cause. In none of the cases I have treated was there any important renal complication, nor was albuminuria detected, although the urine was carefully examined. Renal disease, especially albuminuria, is amongst the rarer complications of insanity.”

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18. *Anæsthesia caused by Diseases of the Lungs.*—M. BOUCHUT long ago remarked the fact, that the approach of asphyxia in the latter stages of croup brought with it a condition of lowered, and finally of extinguished sensibility. He now produces examples of other diseases, to show that the law is a general one, that asphyxia is always accompanied, *pari passu*, by anæsthesia; and this anæsthesia is quite independent of any diminution of consciousness. The most interesting of his cases is that of a young man, a student, who was attacked with a most profuse and suffocating hæmoptysis. During several hours he was in a condition of extreme asphyxia, and although his intellect remained clear, he had complete anæsthesia, and curiously enough, even an erection of the penis and discharge of semen such as frequently occurs in persons who are hanged. The other examples cited of anæsthesia occurring in the course of respiratory affections, are cases of croup, capillary bronchitis, &c.—*London Med. Rev.*, Oct. 1862, from *Gazette des Hôpitaux*.

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19. *Therapeutics of Consumption.*—Dr. CORRON, in a paper read before the Medical Society of London (Oct. 20, 1862) presented the results of some experiments which he has been carrying on for the last five years at the Hospital for Consumption, Brompton, upon the action of certain medicinal substances upon phthisis. He had exhibited the following substances, each in twenty-five cases of simple uncomplicated consumption—viz., phosphorus, liquor potassæ, hydrochloric acid, iodide of iron, iodide of potassium, chloride of sodium, vinum ferri, glycerine, sesquichloride of iron, chlorate of potash, quinine, and phosphoric acid. The results were numerically stated upon a table which was exhibited. The phosphorus was administered in doses of about one twenty-fifth of a grain two or three times a day; in a few cases it seemed to do good, but more generally its effect was unsatisfactory. \*Liquor potassæ was productive of very little good, and presented a marked contrast to the dilute hydrochloric acid, which evidently contributed in many instances to marked improvement in the patients; only 12 per cent. of those who had taken the potash having been benefited, whilst 68 per cent. of those who had taken the hydrochloric acid received more or less good. Amongst the latter were some very decided cases. Iodide of potassium contributed but few cases of improvement, its effects being generally of a negative character. Iodide of iron, however, made a very respectable addi-



tion to the list of improved cases. In many instances chloride of sodium acted favourably as a tonic, both the appetite and general power of the patients appearing to increase under its use. Steel wine was productive of very good results, especially in children and young persons. The author appeared to place great faith in its use, particularly when given with, or immediately after, meals. Glycerine failed very generally, and its effects could bear no comparison with cod-liver oil, both these substances having carefully weighed one with the other. Of all remedies the sesquichloride of iron seemed the most effective, a considerable number of patients (66 per cent.) having derived more or less advantage from its use. Dr. Cotton stated that both in his hospital and private practice he had long regarded this as one of the most useful agents in the treatment of the ordinary run of consumptive patients. Chlorate of potash proved useful in many of the very cachectic cases; but it was far from a "specific"—a title given to it by more than one medical practitioner. Quinine was less effective than many other tonics, although it did good in a small proportion of cases. Steel and quinine, however, were spoken of by the author in very laudatory terms. Phosphoric acid acted as a tonic in a certain number of cases, but was inferior to other mineral acids, especially the hydrochloric. The author carefully explained that the table he had exhibited showed rather the comparative than the absolute value of the remedies he had given, since it was impossible to separate from its share in the results the combined action of hope, rest, good diet, and general hygiene, which at the Consumption Hospital form an important part of the treatment.

The following are amongst the conclusions which Dr. Cotton wished to draw from the facts he had detailed:—

1st. That since, during the administration of each one of the agents he had experimented upon, several cases were observed to run through the various phases of the disease, some to a fatal termination, it is obvious that, whatever the amount of benefit which in some cases followed their use, no one of such agents deserves the title of "specific."

2d. It may fairly be concluded that the good effected by any of these agents was due to their respective tonic and upholding influence upon the general system.

3d. In the majority of phthisical cases, steel—especially the sesquichloride of iron—and the mineral acids appear to be the most effective; but tonics generally are productive of more or less improvement.

4th. Since, however, even steel and mineral acids, as well as other useful tonics, are undoubtedly inert in a certain proportion of cases, it is not improbable that there are varieties or modifications of phthisis, each of which may require a particular treatment. As there are special varieties of many other diseases requiring special modes of treatment, and yielding to none other, it is possibly the same with consumption.

Dr. Cotton observed, in conclusion, that we are too apt to consider and to treat phthisis as a separate and always similar disease, forgetting the almost endless varieties or modifications it presents; and stated his conviction that at no distant period of time consumption, like many other diseases, will be shown to present definite and special forms, each of which requires definite and special management.—*Lancet*, Oct. 25, 1862.

20. *Pleuritic Effusions, viewed in Relation to Thoracentesis*.—Dr. HENLEY THORP has published (*Dublin Quarterly Journ. Med. Sc.*, Aug. 1862) some interesting observations on this subject, illustrated by two cases in which thoracentesis was successfully performed.

The objects of Dr. T.'s observations are—1st. To sketch briefly the particular morbid states that may call for the performance of thoracentesis; and 2d. To indicate what he conceives to be the just pathological principle which should guide us in our mode of performing the operation.

"The most extraordinary fact connected with the history of paracentesis thoracis is," Dr. T. observes, "the variable amount of success that has hitherto attended it in different hands—the most discordant results have been obtained by men of equal experience, and possessing similar advantages for observation—

nevertheless, although individual opinion has differed so widely respecting the merits of the operation, it is now demonstrated that its general result is most encouraging, whether considered as a curative or merely palliative measure. The very important contributions of Bennett, Hughes,<sup>1</sup> Hamilton Roe,<sup>2</sup> and Phillips,<sup>3</sup> [Dr. T. should have added—and of Dr. Bowditch], place the statistics of the operation in a very favourable position, and have contributed in a great measure to remove the erroneous views, respecting its danger, rather generally entertained by the profession. Nevertheless, much diversity of opinion still exists as to when and in what cases thoracentesis ought to be performed.

“I think the following enumeration will be found to embrace nearly all the conditions under which the proceeding is likely to be contemplated: Cases of hyperacute pleurisy, attended with rapid effusion and eccentric pressure, so formidable as to threaten suffocation; cases of pleurisy in which, after the ordinary treatment has failed to remove the effusion, the latter remains either stationary or increases; in empyema proper, or pyothorax, when the strength of the patient is unable to bear up against the suppurative crisis, or asphyxia is imminent; in cases of chronic pleurisy, or latent effusions, occurring, for the most part, in young subjects, after the failure of ordinary measures; unabsorbed effusions incident to Bright’s disease, attended with dangerous thoracic distress; pleural collections, persisting as sequelæ of the exanthemata, or continued fever; passive dropsy of the pleura, attended with symptoms of impending suffocation, complicating organic disease of the heart and lungs; certain cases of pyo-pneumothorax produced by the sudden bursting of vomica into the pleural sac; some examples of the same condition, the consequence of sloughing of the lung and pleura; traumatic lesions, where the presence of blood, air, pus, or other effusions is productive of hazardous pressure irremediable by other means.

“From a glance at the foregoing category it must appear obvious that no approach to a uniformity of symptoms or physical signs can be arrived at as an indication for the operation; the whole series, however, as respects the remedy in question, may be arranged into three groups:—

“1. Cases in which thoracentesis, in the absence of symptoms of immediate urgency, may be employed as a curative measure.

“2. Cases in which the operation can only be considered as a palliative remedy.

“3. Cases in which it may be had recourse to as a *dernier ressort*.

“I apprehend that the greater number of the conditions above specified are such as would be considered, by the majority of practitioners, beyond all hope of cure, or even relief, from any operative measure, still I cannot avoid entertaining a belief that the value of thoracentesis, rendered more perfect and safe as the mode of performing it comes to rest upon sounder principles than heretofore, will by-and-by be generally recognized by the profession; and that the operation will be practised earlier and oftener, and on the whole, perhaps, with fewer misgivings as to the ultimate issue than paracentesis abdominis, which is, with very few exceptions, only had recourse to as a palliative remedy.”

In connection with the various plans proposed for tapping the chest, Dr. T. considers that “a point of paramount importance has failed to receive from surgeons the consideration it deserves, namely, the physical characters of the fluid to be evacuated. Each practitioner recommends a particular mode of operating, without any reference whatever to the quality of the pleural contents. Would, I may ask, collections in other parts of the body of serous, sero-sanguineous, sero-albuminous, and purulent fluids be treated alike, and by the same surgical procedure? Do not surgeons every day practically recognize the difference between chronic, cold, acute, symptomatic, and other abscesses and collections, and act accordingly? How comes it that pleural effusions, of whatever character, should be placed in the anomaly of having only one plan of proceeding applicable to them? Surely here must be an oversight. Until lately surgeons had an unfounded dread of opening even acute purulent collections in certain

<sup>1</sup> Guy’s Hospital Reports, vol. ii., new series. 1844.

<sup>2</sup> Medico-Chirurgical Transactions, vol. xxvii. p. 198. 1844.

<sup>3</sup> Medico-Chirurgical Transactions, vol. xxvii.



localities—for example, in connection with the larger joints. This prejudice, however, is fast dying away; and if the practice first insisted upon by Mr. Gay were oftener and more promptly executed we should have, perhaps, fewer cases of ‘resection,’ an innovation which has of late years become so very fashionable.

“Let us endeavour, then, to apply the common principles of pathology to the treatment of hydrothorax and empyema, and seek to apprehend correctly the ordinary operations of nature in the removal of these diseases. How does the spontaneous cure of pyothorax take place? Here as elsewhere the purulent matter tends to the surface, and is either discharged into the bronchi or penetrates the chest-wall through an intercostal space; atmospheric air has access to the sac of the abscess; gradually the suppurative action lessens as the cavity contracts; and, if the strength of the patient be equal to the effort, a cure is effected. How differently does nature proceed in her task of eliminating serous, sero-albuminous, and non-purulent collections in the same locality. These latter are never discharged *as such* in the manner just described; they are either directly absorbed, or of necessity undergo the *purulent transformation* preparatory to their opening into the lungs, or externally. May not these considerations be suggestive as to the most eligible mode of performing thoracentesis in different instances, and moreover throw some light upon the long-debated question of the influence of atmospheric air when admitted into the pleural cavity.

“It is almost superfluous to remark, that some operators suppose this gaseous body to possess a most pernicious influence, whilst others believe it to be perfectly innocuous. That atmospheric air itself exerts no irritating influence on the tissues of the body is rendered pretty evident by the phenomena of general emphysema, as also of simple pneumothorax, whether traumatic or occurring as a consequence of rupture of a dilated air vesicle; although the cellular tissue of the body may be inflated so as to resemble a ‘stuffed skin,’ and the pleura distended almost to bursting, no erythema or reactive inflammation is the consequence of the lesion. But that atmospheric air, on some occasions, does exert a deleterious effect is unquestionable; but it so acts, not by reason of its stimulating properties, but simply because it supplies one of the conditions under which putrefaction of purulent and other fluids is likely to occur. Not that its presence is invariably followed by the chemical change in question. Laennec gives the case of a patient affected with broncho-pleural fistula, who for six years exhibited the signs of hydro-pneumothorax without either local or constitutional distress. Louis, and various other physicians, have witnessed similar instances. In truth the precise conditions under which putrefactive changes are generated in the pleura have yet to be determined; insomuch so that we are forced to admit, in addition to the acknowledged influence of heat and air, the presence of some unknown agent or state which disposes the fluid contents to undergo catalytic changes—or how explain the cause of the latter not taking place in the cases just referred to? Enough, however, is known to warrant the exercise of great caution in performing paracentesis so as to prevent the ingress of atmospheric air in certain pleuritic effusions of the non-suppurative class; whereas purulent collections in the cavity of the chest should form, in my opinion, no exception to the ordinary manner of dealing with similar diseases elsewhere.

“In short, I would apply to pyothorax, or pure empyema, the surgical principle, to which there are few exceptions in acute or subacute suppurations; that of discharging the abscess by a free opening. Here, however, it is necessary to inquire where the perforation should be made when the case admits of a point of election? and we may not act unwisely by interrogating the *vis medicatrix* on this head. When spontaneous openings occur, are they not generally found anteriorly and high up? Nature then indicates these positions as being the most eligible by her own operations. Nor is the object of her method obscure or unintelligible. By causing the liquid contents to proceed from below upwards she guards against the sudden evacuation of a cavity (and consequent entrance, and imprisonment of atmospheric air in proportionate volume) the walls of which can only approximate by slow degrees; thus the suppurating sac is emptied gradually by its own contraction; and the air, which can only enter in small quantity, has *free egress*, being *always uppermost*, and in close proximity with



the discharging orifice. We should therefore, in conformity with these principles, not open the chest in a depending position; for, if, unfortunately, afterwards, putrefactive changes take place, the septic gases floating above the other contents *have no exit*, are absorbed by the lining membrane of the cavity, excite inflammation of the latter, contaminate the blood, and produce typhoid symptoms. To prevent, then, putrid absorption, and its concomitant evils, let the empyema be opened above—that is to say (when the case admits of our doing so), between the fourth and fifth ribs, anteriorly, and provide, if necessary, for the constant drainage of the abscess by the introduction of a Chassaignac's tube.<sup>1</sup>

"In cases, however, of hydrothorax, or sero-albuminous, sero-sanguineous, and passive collections in the pleural sac, our operative proceedings should be guided by very different principles. In pyothorax a pyogenic membrane is already formed, and matter is making its way to the surface; by evacuating the collection we only complete an operation already commenced. But the other class of effusions referred to are very differently circumstanced; they are not included in an adventitious sac, or newly organized membrane, but lie in contact with the serous surface in a healthy condition, or only slightly altered in anatomical structure and vital endowments; the fluid evinces no tendency to reach the surface; if it disappear it is directly absorbed from the serous cavity, and is never evacuated externally without having previously undergone more or less of purulent metamorphosis. Therefore we should endeavour, in dealing with these immature collections, to avoid all causes of irritation, and to prevent, by all means in our power, the higher or suppurative grade of action not yet attained under existing conditions; in short, we should make the practice of art approach as closely as possible to nature's own operations, and not proceed in untimely advance of them. Accordingly the fluid ought, only in the first instance, to be partially withdrawn; the remainder may be absorbed into the system; if not, the tapping may be repeated. Valvular perforation of the integuments and the employment of a vulcanized India rubber bag and stopcock, or the ingenious trocar and canula invented by Mr. Charles R. Thompson, will effectually prevent the entrance of atmospheric air.<sup>2</sup>

"By proceeding in this manner we do not overstrain the vital processes of the economy in their progress towards the restoration of health, but only disencumber them of impediments that check their free action, and, with full confidence in her resources, leave Nature to complete the cure by the continuance of her own efforts.

"We first endeavour to comprehend the purposes and *modus operandi* of the *vis medicatrix*, and then follow faithfully in her path, without seeking, by premature interference, to reverse the natural order of pathological events, or force upon her contingencies for which she is as yet unprepared."

21. *On Tobacco as a Cause of Angina Pectoris.*—Among the bad effects produced by the excessive use of tobacco may be mentioned vertigo, chronic sore throat, dyspepsia, and cough accompanied with emaciation simulating phthisis. To these morbid conditions we must now, according to Dr. BEAU, add angina pectoris. This opinion is founded upon eight observations contained in an interesting paper lately laid before the Academy of Sciences. These facts have an additional value because they agree perfectly with the experiments of

<sup>1</sup> It may be necessary, in certain cases, to make a counter opening inferiorly, and draw the tube completely across the cavity. This plan of "drainage" has been adopted in two instances, by Dr. Goodfellow, with signal success. He reports them in the 42d. volume of the Medico-Chirurgical Transactions. The practice, also, of iodine injections, after the cavity has been reduced to the condition of a fistula, is well worthy of trial.

<sup>2</sup> As suppurative action is not anticipated in the mode of operating referred to in the text, the point of election need not, as in pyothorax, deviate from that generally selected—namely, between the fifth and sixth or sixth and seventh ribs, and midway between the sternum and spine. When any doubt exists as to the nature of the fluid, the introduction of Dr. Babington's explorer will be found preferable to the grooved needle in ordinary use.

M. Claude Bernard upon nicotine, and are illustrations of the doctrine which considers angina pectoris as being an affection of the muscular substance of the heart, with irradiations in the thorax, the neck, and the upper extremities.

M. Bernard has proved that nicotine, a poisonous alkaloid as powerful as prussic acid, though acting in a different manner, produces its principal effects upon the nerves, upon the muscles, but especially upon the vascular system. In a moderately strong dose, this substance produces in the muscles convulsive movements which may terminate in a permanently tetanic condition; whilst, if the dose is small, the first effects are produced upon the heart and lungs, giving rise to acceleration of the respiration, and increased energy of the cardiac pulsations. A clear proof that the nerves are the organs of transmission of this complicated action is, that after the division of the pneumogastric none of these phenomena are manifested. It is important to add, that the action upon the muscular system is produced exclusively when the nicotine is pure and in sufficient quantity; whilst, if it is diluted or mixed, it acts specially upon the respiratory apparatus and the heart.

Of course, Dr. Beau does not suppose that the abuse of tobacco is the only cause of angina. On the contrary, he says, that the causes of this affection are numerous, and he has only pointed out an additional cause which had not been previously attended to. He also adds that for the production of angina among smokers a series of conditions is required, which is only rarely met with. These conditions are: 1st, the excessive use of tobacco; 2d, a special susceptibility of the individual; 3d, debilitating influences, such as anxiety, fatigue, an enfeebled condition of the digestive organs, etc., which, preventing the organism from getting rid of the tobacco absorbed, allow it to accumulate to such a degree, that nicotine is present in sufficient quantity to produce its poisonous influence upon the heart.

The following are the observations appealed to by Dr. Beau.

1st. A small proprietor, sixty years of age, passed the greater part of his time in smoking. For about a month he had often experienced, during the night, attacks of palpitation, with oppression and pain radiating to his shoulders. He ceased smoking; the nocturnal attacks disappeared completely at the same time that his digestive functions improved. At the end of three months he recommenced to smoke, and the attacks returned. He then definitively abandoned the use of tobacco, and the attacks of angina ceased, never to return.

2d. A medical practitioner, fifty years of age, feeble and dyspeptic, although appearing healthy and robust, smoked cigarettes as much as his occupations would permit. During some time he suffered from palpitation with severe pain and constriction of the chest, which came on indifferently during the day or night. He gave up tobacco, and the attacks disappeared. One day, he was in the company of smokers, and although he did not himself smoke, he could not help breathing an atmosphere impregnated with tobacco. The following night he had an attack.

3d. A medical practitioner in the country, thirty-five years of age, was in the constant habit of smoking cigarettes while going about to pay visits. For some time he had eaten very little, and without appetite. One morning, having eaten nothing, and while smoking, he was suddenly seized with severe pain in the region of the heart, with a sense of constriction in the upper part of the chest. He could neither walk nor speak, the pulse was imperceptible, the hands cold. The attack lasted half an hour. The patient came to Paris and consulted Dr. Beau, by whose advice he gave up the use of tobacco. He returned home, promising to write to Dr. Beau if he had another attack. Nothing has since been heard of him.

4th. A young Spaniard, thirty years of age, was constantly smoking cigarettes. His appetite entirely failed, and digestion was difficult. One evening, while smoking, he was suddenly seized with a violent pain in the chest, as if he had been squeezed in a vice; his pulse was imperceptible. The attack lasted ten minutes. Much alarmed, he consented to smoke a great deal less, and there has been no return of the symptoms of angina.

5th. A physician who has renounced tobacco on account of the gastric de-



rangement which he suffered from, experienced at the time when he was a smoker nocturnal pains coming on in paroxysms, and characterized by a constriction of the thorax with palpitations, and neuralgic pains shooting into the neck. He is now completely free from these seizures.

6th. A merchant, who for fifteen or twenty years had suffered from dyspepsia, occasioned by the immoderate use of tobacco, has suffered for about two months from nocturnal attacks, characterized by agonizing pain in the region of the heart, with palpitations, and painful radiations extending to both shoulders; the appearance of the face is altered, the pulse is small and intermittent. In spite of the existence of these symptoms, this person smokes more than ever.

7th. An old man of seventy-five, fresh and vigorous, smoked a great deal in order to distract his mind from various sources of annoyance, although he had had several slight suffocative paroxysms. On a Saturday, he had an attack of angina, which lasted for half an hour; next day, the attack recurred; on Monday morning, he was found dead in bed.

8th. A foreign diplomatist who smoked a great deal, and who was in a feeble condition although he appeared robust, was seized one evening in returning home with an attack of angina; his pulse was small, his hands cold, his appearance choleraic. He fell asleep at eleven o'clock, and awoke next morning at his usual hour. He was able to go through all his ordinary duties, and at five o'clock in the afternoon was seated smoking in his arm-chair, when he suddenly expired. On post-mortem examination the only lesion found was a fatty condition of the heart.—*Ed. Med. Journ.* Aug., 1862, from *Journ. de Méd. et de Chirurg. pract.*, July, 1862.

22. *Rheumatic Pericarditis and Endocarditis.*—Dr. JOSEPH BELL, Clinical Lecturer, Glasgow Royal Infirmary, has published (*Glasgow Medical Journ.*, April and July, 1862) some interesting practical remarks on the diagnosis and treatment of rheumatic pericarditis and endocarditis.

From the facts and reasonings adduced in that paper he makes the following conclusions:—

1st. That when the physical symptoms either of pericarditis or endocarditis become manifested in a case of rheumatic fever, we are entitled to infer that these diseases exist, irrespective of the absence of the general or constitutional symptoms which usually attend the idiopathic forms of these diseases.

2d. That we are justified in considering that the effects are capable of being removed, and are therefore amenable to treatment.

3d. That those remedies which are calculated to remove congestion and promote absorption, form the proper therapeutic agents; and that of these bleeding, mercury, and iodide of potassium, are among the most powerful and useful.

4th. That when the action of the heart becomes enfeebled in consequence of effusion into the pericardium, the free use of stimulants becomes absolutely necessary.

23. *The Physiology and Pathology of the Supra-renal Capsules.*—The following are the conclusions arrived at by Dr. HARLEY in his prize essay on this subject: 1. The supra-renal capsules are not foetal organs, but perform their functions up to the latest periods of life. 2. The supra-renal capsules are not absolutely essential to life. When removed artificially or destroyed by disease, their function is vicariously performed by the other "ductless glands," more especially by the thymus. 3. Young animals support the removal of the supra-renal capsules better than old ones (probably on account of the greater activity of the thymus in early life). 4. When only one capsule is extirpated, the other performs the double function. 5. A wounded capsule heals readily. 6. The supra-renal capsules are not marked by any great sensibility. 7. The removal of the right is more frequently attended with fatal results than removal of the left supra-renal capsule. 8. The lower animals are liable to disease of the supra-renal capsules. 9. When death follows upon the extirpation of the supra-renal capsules, in the majority of cases it is in consequence of the injury done to the solar plexus. 10. The supra-renal capsules are richly supplied by bloodvessels as well as by nerves. 11. Their function is apparently intimately connected with the formation of the red blood corpuscles.



The author further shows, from a large collection of facts, that—

1st. Supra-renal capsular disease is two times and a half more frequent in males than in females.

2d. That it occurs with equal frequency above and below the age of thirty-five years.

3d. That both capsules are (four times) more liable to be affected than only one.

4th. That the right capsule is much more liable (three times) to become diseased than the left.

5th. In diseased supra-renal capsules—

40	per cent.	are affected with tubercle.
20	"	" " cancer.
12	"	" " fatty deposit.
12	"	" " calcareous deposit.

6th. Males are more liable to be affected with bronzed skin (either with or without supra-renal capsular disease) than females, the proportion being as 3 to 1.—*Lond. Med. Rev.*, Oct. 1862.

24. *Morbus Addisonii*.—Dr. WILKS exhibited to the London Pathological Society the supra-renal capsule from a patient who had died of morbus Addisonii. The specimen had been sent to Dr. W. by Mr. Truman, of the Nottingham Dispensary, the patient having been under the care of Mr. Marshall Hall Higginbottom. When first seen he was 26 years of age, complained of excessive weakness and want of energy, and there was a slight yellowish tinge on his countenance. He gradually lost flesh and strength until he became confined to his bed; he then underwent a thorough examination, and no disease could be found in his body. The skin gradually darkened, and the only thing he ever complained of was an aching, dull pain in the loins. The weakness increased, and towards the close there was vomiting. On post-mortem examination, the skin was observed to be universally discoloured, of a yellowish-brown hue, and more markedly so on the abdomen; but there were no distinct patches of melasma. All the organs were healthy with the exception of the supra-renal capsules; these were twice the natural size, and, on section, seemed to be densely infiltrated with masses of yellow tubercle.—*Med. Times and Gaz.*, Oct. 25, 1862.

25. *Bronzed Skin Successfully Treated*.—THOS. TAYLOR, Esq., of Cricklade, relates (*British Medical Journal*, March 29, 1862) the following case: "On the 27th of June, 1861, I was called upon to visit Isaac Matthews, a carpenter by trade, stoutly made, of sanguine temperament, and about 36 years of age. I found he had been unwell for some time, and had been obliged to leave his work the last fortnight, simply from weakness. He was unable to walk across the room without assistance; he was in no pain, but felt an uneasiness about the loins; his appetite was not good; the bowels were regular, and the secretions from the bowels and kidneys healthy. The skin of the face and hands was highly bronzed, and had become so about the time he left his work: he said his friends had remarked of what a curious colour he was. He was advised to keep perfectly quiet, and do nothing whatever to produce fatigue, by attempting to walk or otherwise; to take sugar in large quantities with everything he drank; and to take five grains of iodide of potassium three times a day, in water.

"July 1st. He was much the same. He did not find the medicine to disagree in any way, and was ordered to continue the same.

"July 5th. He felt better before he was up this morning, and thought he should be able to walk; but on getting up felt as weak as ever. He was ordered to continue the iodide of potassium three times a day in four ounces of compound decoction of sarsaparilla.

"July 12th. He was rather stronger, and walked rather better; the complexion was rather improved. He continued to mend under this treatment until the 22d, when he had a severe rigor, which returned the next and following day, succeeded by fever, which reduced his strength.

"On the 24th he had five grains of disulphate of quina, twice a day, with croton oil liniment to the loins.

"On the 7th of August his febrile state had left him, but was succeeded by a bronchial cough which was relieved in a few days; so that on the 9th he began taking the syrup of iodide of iron in half-drachm doses three times a day, continuing to take sugar in large quantities. Under this treatment he went on improving daily; his complexion became of its natural colour; his strength increased, so that he was enabled to walk a mile with the assistance of a walking stick, by the 19th; and by the end of the month he walked to Cricklade, a distance of nearly five miles.

"On the 9th of September he again walked to Cricklade, and appeared quite to have recovered his health and strength, and the next day resumed his work.

"I heard nothing of him again until the 5th of February last, when I was requested to visit him, as it was thought he had a return of his complaint. On seeing him, however, I was happy to find that he was suffering from an attack of rheumatism, having got wet away from home three times the week before, and being unable to change his clothes. This yielded very readily to treatment in a few days, when he resumed his work, and has continued well to the present time."

26. *Diabetes Mellitus ending in Phthisis*.—Dr. WILLETT exhibited to the county and city of Cork Med. and Surg. Soc. (April 9, 1862), the kidneys and lungs of a patient, and related the history of the case:—

"The following case, which Dr. TOWNSEND has kindly allowed me to bring under your notice, is a case of diabetes mellitus ending in phthisis, as is commonly the case with this incurable disease:—

"Michael Murphy, aged 24 years, was admitted into the Workhouse Hospital on January 21, 1860. At that time he was passing about three pints of saccharine urine per diem, with a specific gravity of 1025, to 1030. During twelve months from this time, he passed from 8 to 12 pints of the same urine per diem, the mean specific gravity ranging from 1035 to 1040. He was placed under the usual treatment for this disease, viz., brown bread and oleum jecoris aselli, and during its continuance regained health and strength in some measure; but, as soon as discontinued, viz., the brown bread, the sugar again appeared in the urine, and, after a severe struggle with himself, the poor fellow gave up the brown bread from intense disgust, and was allowed his usual meals. The disease from this time, August 20, 1861, gradually decreased, the sugar daily diminishing, as if the disease had exhausted itself. But now as incurable a one set in, viz., phthisis, with its evident signs of night perspirations, cough, hectic, &c. This has gradually increased up to the present time. About two months ago, he coughed up purulent matter, streaked with blood, in large quantities, but with very little fetor attending it. He then became excessively weak and anemic, suffered greatly from dyspnoea, so that, during the last month of his life, he was supported by pillows at his back, night and day; the congested state of one lung, the right, and the emphysematous condition of the left, fully explain this, and he gradually sank till April 17, 1862, eased his sufferings.

"*Post-mortem appearances*.—The body excessively emaciated, not a trace of adipose tissue being visible under the skin, and the muscles of a bluish colour, their normal red colour being entirely lost. The lungs extensively disorganized, that on the right side completely bound down to the pleura and ribs, by very strong adhesions, which, at the apex, I could not separate by my fingers, but was obliged to cut, as you see by specimen; it is quite solid, as also is the entire of this lung. Either from tubercle, or its irritative effect, on cutting it open an immense amount of pus escaped, which I traced to a large vomica or abscess at the apex, and I also found a similar one in the middle of the same lung. I also beg you to observe the intense state of suppuration it is in, nearly approaching to the third stage of pneumonia, by Laennec called gray hepatization; or gray softening, by Andral, having both within and externally a yellowish or grayish colour, and when cut, exuding a yellow, opaque, purulent fluid, turgid somewhat with blood; that on the left side emphysematous. If you observe at the borders, on squeezing it, you will perceive the course of several small bloodvessels, not yet



obliterated by the enlarged air-cells, showing that the emphysema was in this case recent. The heart was small, from the reason of the little amount of blood to drive through the body for its nutrition, and also of a pale colour. Liver normal, but rather enlarged. Stomach normal on the outside; on being cut open, full of thick gastric juice, very acid. Kidneys, as here seen, not much enlarged, and only in a very hyperæmic state. Structure tolerably distinct, and showing how very evanescent are the traces of this formidable disease.

"In regarding the prognosis of this disease, I think that we can never look for a successful cure, as, should the saccharine state of the urine cease, or the diabetes be cured, the general tendency is, as asserted by several authors, to pass either into phthisis or morbus Brightii. The tendency to phthisis we can easily imagine, in consequence of the tissues of the lungs being so poorly nourished, and its tendency thus to degenerate into tubercle, and this particularly so should the patient show any tendency to the strumous diathesis; its leading to subsequent atrophy of the kidneys also we may assume, in consequence of their hyperæmic state, which is the first stage of Bright's disease, in consequence of their over-increased function, this hyperæmic state soon leading to obstruction of the renal tubuli by fibrin, the pressure of this on the small capillaries tending to exudation of the albuminous portion of the blood as well as the increased action of the epithelial cells in the tubuli, which, with the pressure of the enlarged capillaries on their outside and loss of cells by desquamation, and entirely filling up the secreting portion, soon passes into fatty degeneration, or the small, contracted, or atrophied kidney. I think it is also very difficult to state whether the suppurative condition, or abscesses in the lungs in this case, arises from tubercle or chronic pneumonia, as, on feeling very carefully over both lungs, I could not trace a single hard substance between my fingers. We rarely see it so entirely consolidated with tubercle excepting in cases of tuberculous infiltration. But, if we argue that such is the case, how do we account for the entire mass of tubercles suppurating *en masse*, at the same time as to the tendency of tubercle to the upper part and pneumonia to the lower lobes, as well as to the arguments deduced for the preferable localities of each on the right or left sides. I find the best authors differing, and, on that account, deduce that we may consider the question as yet *sub judice*. I find that, after searching several books, it agrees with a form of pneumonia called chronic. Under this head I find that abscesses are frequently found; also, in another form of the same, the lung is found compact, and heavy, pitting little or none on pressure, not crepitant, tearing with difficulty, sometimes almost cartilaginous; when cut, exuding a purulent or muco-purulent fluid; the colour dull red, or yellowish-brown or grayish. When distinct lobules are affected, the lung has an irregular, knotty feel; its volume is diminished sometimes. Abscesses exist within the hardened structure, and, in some instances gangrene was observed by Andral."—*Dublin Quart. Journ. Med. Sc.*, Nov. 1862.

27. *New Means of Distinguishing Diabetic Urine.*—M. PAILLON, of Sainte-Foy-lez-Lyon, has observed that diabetic urine, if allowed to stand for ever so long a time exposed to the air, does not, like ordinary urine, emit any smell of decomposition. A specimen which had been exposed to the air during a fortnight had only become somewhat lighter coloured and a little muddy, but gave out no nauseous odour. This urine was submitted to M. Burin du Buisson for analysis, and he failed to discover any sugar; but, on being told of the length of time which had elapsed since the urine was passed, he examined it again, and readily discovered alcohol, into which the sugar had become transformed. M. Paillon suggests that the absence of odour after long exposure to air would form a useful test of the presence of sugar in urine in cases where the physician might not have chemical reagents at hand.—*London Med. Rev.*, Aug. 1862, from *Gazette des Hôpitaux*, 3 Juillet.

28. *Production of Carbonate of Ammonia in the Blood in Uræmic Poisoning.*—DR. ALEX. PETROFF, of Dorpat, has published some very important researches, which go to support the theory of Frerichs. The object of these investigations was chiefly to examine the validity of Oppler's statements



founded on experiments of his own, in opposition to Frerichs. Oppler stated that Frerichs' second and third inductions were incorrect, and that the theory based on them was therefore groundless. He declared that after artificially producing uræmia in animals (by removal of the kidneys or ligature of the ureters), he was unable to detect carbonate of ammonia in the blood or secretions; and, moreover, that the injection of carbonate of ammonia into the venous system of animals fails to produce any symptoms truly comparable to those of uræmia. He declared that in uræmia, as Hoppe had long since stated, the quantity of urea and extractives in the blood, and the quantity of extractive in the muscles, was abnormally increased. Dr. Petroff's present investigations were made with the sanction and assistance of Professors Bidder and Schmidt. Dogs and cats were chloroformed, and the operation of nepheotomy carefully performed. After recovery from the chloroform, the jugular vein was opened, at various distances of time from the operation, and the blood received into two vessels each containing absolute alcohol. One of these portions of blood was to be tested for urea, a few drops of acetic acid were added to this, and the mass allowed to stand for twenty-four hours in a cold place, filtered, and the filtrate evaporated to a dry mass, which was repeatedly washed with water and with absolute alcohol, and then set aside to crystallize over sulphuric acid. Prismatic needles of urea were thus obtained, and the presence of urea was confirmed by other tests. The other portion of blood, examined for carbonate of ammonia, was received also into absolute alcohol and then at once distilled, the distillate being received into dilute hydrochloric or sulphuric acid of known strength. The quantity of *free ammonia* was thus decided: while the ammonia in combination was estimated by the examination of the residue left from the distillation. The bile, the contents of the stomach, and other fluids of the body, were also examined for ammonia. Dr. Petroff also made a series of very careful experiments on the comparative effects of injections of ammonia into the blood, and the artificial production of uræmia. The following are the general conclusions at which he arrives: 1. When the kidney function is interrupted, carbonate of ammonia is formed in the blood. 2. Injection of carbonate of ammonia into the blood produces symptoms strictly comparable to those of uræmia. 3. The degree in which these symptoms appear, and their character, depends on the proportion of ammonia in the blood, and the circumstances in which it exists there.—*London Med. Rev.*, Nov. 1862, from *Virchow's Archiv*.

29. *Membranous Cysts in the Interior of the Urinary Bladder*.—Dr. R. KNOX states (*Med. Times and Gaz.*, Aug. 2, 1862) that his attention was drawn, a short time since, to this subject by a deplorable case, of which some account was given in the medical journals. From what appeared in the brief narrative, the nature of the case did not seem clear. A lady, during her confinement, suffered severely from retention of urine, and although subsequently relieved, at last sunk, in consequence, seemingly, of the sufferings caused by the retention. A post-mortem, made by Mr. Spencer Wells, disclosed a condition of the urinary bladder such as was to be expected from an intense inflammation of the mucous membrane of the viscus. A sac, seemingly composed of the mucous membrane itself, lay coiled up in the interior of the bladder. It was also surmised that vascular fibres might be seen on one surface of this sac, so that during the progress of the disease, according to this view of the case, two layers of the walls of the urinary bladder had sloughed and lost all connection with the remaining walls of the organ.

This view of the case seemed to Dr. K. to be untenable, and he felt disposed "rather to think that the cyst or detached membrane in question could be nothing more than a pseudo-membranous bag, formed in the usual way by an inflamed mucous surface, as we find so frequently in cases of croup, etc. Happening shortly thereafter to meet Dr. Tanner, I discussed the matter with him, and narrated to him the following remarkable case, which occurred in the practice of Mr. Liston, and of which I was not only an eye-witness, but acted throughout as his assistant.

"Late one evening Mr. Liston called on me and asked me to accompany him and to assist him in an operation he contemplated, and in order not to lose time

he would narrate the particulars as we walked along. They were as follow: The patient was a man in humble life; he had been unwell for some time, complaining chiefly of an obstruction to, or a difficulty in discharging the urine from the bladder. On passing a catheter, Mr. Liston felt, or fancied he felt a soft, yielding, but obstructing body in the prostatic portion of the urethra. This readily gave way before the catheter, which then passed into the bladder, but on being withdrawn it was followed by the foreign body, which immediately reoccupied its former position. Mr. Liston then explained to me his view of the case, which was this: 'A cyst or false membrane of the form of the bladder itself, occupied, as he conjectured, the interior of the bladder, and were this removed by an operation the patient might recover.' The boldness of the proposal, or rather the diagnosis itself, astonished me, and I told him so; but on introducing the catheter, and meeting with the same phenomena as he had described, I at once gave into his view. We were alone. With a straight sharp-pointed bistoury, which he usually carried in his waistcoat pocket, he opened the bladder above the pubes, and as the incision proceeded there escaped from the bladder a foreign body resembling a cyst or false membrane, as he and I concluded it to be, and of the shape of the interior of the bladder. It escaped into my hands. The wound was closed simply; and as we returned home, bringing the preparation with us, I could not but observe to him that of all the bold and successful operations he had performed, none equalled in merit the diagnosis he had just made, and that half a century might elapse before he made such another. The patient recovered and lived for some time.

"From that day until the present time I heard no more of the case, and thought no more of it until the occurrence of the one mentioned by Mr. Spencer Wells to the Pathological Society. Discussing it with Dr. Tanner, I suggested that we should look for Mr. Liston's preparation in the museum of the College of Surgeons, to which museum I knew that Mr. Liston had presented a few rare pathological specimens he had brought with him, many years ago, to London. To my surprise, we found a layer of muscular fibres on the cyst, thus throwing doubts over the nature of the preparation itself. There was the identical cyst, or pseudo-membrane as I had always fancied it to be, evidently complicated with another structure, whose presence there could not be readily explained on the pathology of Baillie or Hunter. I have again re-examined the preparation with Mr. Henry Thomson, whose great experience and extended inquiries into prostatic and vesical diseases are well known. I think that the presence of muscular fibres forming a sort of layer of the sac, cannot well be doubted, so that the preparation is not altogether what Mr. Liston and I took it to be—a simple pseudo-membrane composed of but one tissue; and now arose the question in my mind, whether I had not seen or read somewhere of the formation of false muscular fibres, the product of inflammation, as well as of the usual pseudo-membrane, for I felt disinclined to believe in the theory that the cyst found in the bladder was in reality the mucous membrane, and a layer of the muscular, in a sloughing state detached from the walls of the cavity. I felt convinced that I had read of a case or two<sup>1</sup> in which a layer of muscular fibres had formed in large masses of exudation, arising from an inflammation of fibrous or cellular membrane. Turning to the learned Vogel, I there found the title of the work, '*Tractatus Anatomico Pathologicus Sistens duas Observationes rarissimas de Formatione Fibrarum Muscularum in pericardio Atque in pleura obviarum.*' Leo-Wolf: Heidelberg et Leips. 1832. Vogel quotes Wutzer's critique on it in *Müller's Archiv.*, 1834, p. 45. I never saw Leo-Wolf's preparation, but if the engravings in his treatise truly represented the structures, then undoubtedly muscular fibres had been formed by the same process which gave rise to the effused false membrane on which they rested. But Vogel, whose accuracy is extreme in all such matters, assures us (p. 184) that 'the microscopic examination (the only decisive test) had been altogether neglected, as in the cases observed by Leo-Wolf.' But simple non-striated fibres are often formed as independent (fibroid) tumours, and causing hypertrophy of the muscular walls of cavities. The question then is, what is the real nature of the seemingly muscu-

<sup>1</sup> The treatise was at one time in my own library, but has been lost.



lar fibres to be distinctly seen in the cyst removed from the urinary bladder by Mr. Liston? Of those somewhat more doubtful in the first case, discussed by Mr. Spencer Wells, in his second case, and in the very interesting case of Mr. Maunder, which he kindly related to me, and which I am indebted to Mr. Henry Thomson for an opportunity of examining with the utmost attention, assisted with all his knowledge of these structures. A brief statement of the history of these cases may ultimately lead to some important investigations, and clear up a pathological question of the obscurest. For my own part, I feel disposed to reduce the whole phenomena to one simple law of morbid epigenesis of muscular fibres, real or apparent."

30. *Inversion of the Urinary Bladder through the Urethra, with large Prolapsus of the Rectum, in a Female Child.*—Dr. BEATTY communicated to the Dublin Pathological Society an example of this. The subject of it was a female child, aged one year and eleven months, which was sent from the country to the City of Dublin Hospital, with a statement that there was something wrong with the genital and urinary organs. She was a fine, strong, handsome child. The appearance of the parts was most extraordinary. Just between the labia there was a scarlet tumour about the size of a chestnut; and it at once struck him that it was the inner surface of the bladder, similar to what has been seen in cases of vesico-vaginal fistula, or of malformation where the anterior wall of the abdomen is open above the pubes, and the inner coat of the bladder protrudes.

Upon touching it with his finger the child cried violently. It could be forced back, and even replaced by pressure; and the urethra was sufficiently large to admit of the easy passage of his forefinger into the replaced bladder, showing the case to be one of complete inversion of the bladder through the urethra. The mother told him that the inversion of the bladder did not take place until the child had a fit of crying when it was twelve months old. There was also a large prolapsus of the rectum, which occurred when she was nine months old, in consequence of an attack of diarrhœa. The child remained in hospital up to Monday last, and continued quite well. Dr. Beatty kept her in for the purpose of devising some means to remedy the defect. On Sunday morning, however, she was attacked with severe croup, which terminated in her death on Monday evening. He was thus enabled to obtain the specimen now before the society, showing the bladder turned inside out through the urethra. It had now lost some of the scarlet colour, and something of its size. In the prolapsus of the rectum there was nothing remarkable; but, combined with the other defect, it gave the parts a very curious appearance. The uterus was *in situ*, and the ovaries were very large for a child of her age. Dr. Beatty had never seen another instance of such inversion. The child died of croup, as he before stated, and the specimen showed a very perfect, well-formed false membrane, lining the trachea, and forming a tube within it. The gentleman who made the *post-mortem* examination told him that the deposit of false membrane did not extend lower down than the bifurcation of the trachea.—*February 22, 1862.—Dublin Quart. Journ. Med. Sc., Aug. 1862.*

31. *Verruca Necrogenica.*—Dr. WILKS exhibited to the London Pathological Society (Oct. 21, 1862), wax models of disease of the hands produced by post-mortem examinations. The patient, a young man, had been employed in the post-mortem-room. The models illustrated the peculiar affection of the skin produced by the acrid fluids of the dead body. The knuckles of both hands had upon them brown, circular, raised patches of morbid epithelium, giving the appearance somewhat of epithelial cancer. The chronic and obstinate nature of these warty excrescences was most remarkable, for, if removed or portions be picked off, they again grow, and remained for years. Dr. Wilks had, on more than one occasion, recognized this disease in strangers, and suggested its cause, for which reason he believed it to be peculiar and characteristic; at least, he knew of no other irritants which produced exactly the same effect. There was no name already in use which was strictly applicable to it, since epithelioma, lepra, &c., were already in use for definite affections; he had, therefore, simply styled it warty or *verruca necrogenica*.



Mr. Spencer Wells asked if the disease was not the same as that known as the Anatomical Tubercle of Pinel. He had seen it in several persons, but had only once observed it in any one out of the profession. This was in a clergyman who was fond of bird-stuffing.

Dr. Bristowe said that he had had it two years, and had watched it closely. At first it was a small pustule, which was covered by a scab, consisting of epithelium with little conical processes. It never contained any nested cells. At first he applied to it mild caustics, as nitrate of silver, but these only made it more irritable. He, therefore, destroyed it by one free application of the acid nitrate of mercury.

Dr. Peacock said that when in Edinburgh he was troubled with a similar affection. He agreed with Dr. Bristowe that mild caustics only made matters worse. After a few years it disappeared. At the first he had several boils, but one of them never sloughed, and went on to the state mentioned.

Dr. Harley said that last year he was consulted by a man whose duty it had been for many years to assist in making post-mortem examinations at University College Hospital. At the time when he saw him, however, he was acting as porter. The hands were covered by tubercles. On scraping them and putting the scrapings under the microscope, he found great hypertrophy of the epidermis. He did not think that the disease extended to the true skin. He advised the application of nitrate of silver, and this was followed by some benefit during its use.

Dr. Wilks said that he supposed all were agreed as to its pathology—that it was an affection of the epidermis only. In his own case he had applied the tincture of iodine with benefit.

The President said that some years ago he was consulted by a medical man for a similar affection. The application of the strong tincture of iodine cured it.

Dr. Crisp said he believed that, if pathologists would oil their hands before they made their examinations, they would not suffer from such affections.—*Med. Times and Gaz.*, Oct. 25, 1862.

32. *Eczema of the External Auditory Meatus.*—We find in the *Glasgow Medical Journal* (April, 1862) some practical remarks, by Dr. T. McCALL ANDERSON, on this not uncommon, and so far as our experience goes, troublesome and very refractory affection. "It may occur," he states, "in connection with eczematous eruptions on other parts of the body, but the local causes specially operating are the introduction of pins, ear-picks, and acrid substances into the meatus. The patient sometimes complains of a feeling of fulness in the ear, but the itching is the most annoying symptom, to allay which, pin, ear-picks, &c., are frequently introduced, so as to scratch the parts—the finger nails, which are employed for a like purpose on other parts of the body, being inadmissible. In this way the irritation is relieved for the moment, and the disease proportionately aggravated. The calibre of the meatus is narrowed, often so much so that the membrane of the tympanum cannot be distinctly seen, the amount of the narrowing being dependent upon the amount of infiltration of its walls. There is always exudation from the meatus at some stage of the disease, and the fluid which exudes is either milky or watery, and sometimes so extensive as almost to soak the pillow at night. If the ear is not frequently washed out, the exudation has a very bad odour. At other stages the meatus may be quite dry and scaly, and in connection with this condition, I have frequently noticed the surface of the membrane of the tympanum to be dry and scaly also. Sometimes large quantities of epithelium are thrown off from the meatus, so as to block it up, and cerumen is sometimes mixed up with the epithelial mass. The secretion from the ceruminous glands is, however, for the most part arrested in this affection. The hearing power is often not much impaired; the amount of deafness depending upon the amount of infiltration of the walls of the canal, upon the quantity of epithelium and discharge accumulated in the meatus, and upon whether the drum and mucous membrane of the cavity of the tympanum are implicated or not. Sometimes the deafness is so great that the tick is only heard when the watch is close to the ear. The cure is often tedious, as it is impossible to apply local remedies so well to the meatus as to the skin; and strong

local applications must be used with caution on account of the delicate structures at the bottom of the meatus. Internal medicines appear to exercise very little influence over the eruption. Arsenic, for instance, which sometimes removes eczema with almost incredible rapidity, is, as far as my experience goes, quite useless; and, indeed, I have noticed that a limited eruption is, as a general rule, much less under the influence of internal remedies than one which attacks a large portion of the cutaneous envelop. Purgatives are useful as regards a temporary alleviation of this complaint, but I doubt much if they produce any very permanent beneficial effect. We must trust, then, mainly to local measures, the first of which consists in washing out the meatus once or twice daily with tepid water, with a good syringe, such as that manufactured by Messrs. Savory and Moore, instead of those trumpery little glass things which apothecaries usually keep, and which are too frequently made in the most careless manner. If the meatus is not exuding, but, on the contrary, is dry and scaly, it may be necessary to drop a little almond oil into it, so as to soften the particles and facilitate their subsequent removal with the syringe. After all the effete matter has thus been removed, I am in the habit of painting the walls of the meatus with solutions of potassa fusa (commencing usually with gr. x to the ounce of water, but the strength must be proportioned to the severity of the disease). A small paint brush is dipped in the solution, and gently stripped, so that it does not contain too much fluid, and then insinuated into the meatus for the extent of half an inch, and twisted round, so that the walls of the canal are entirely moistened by the fluid. This usually causes considerable pain, which, however, subsides in a few minutes. If the action is very severe, it may be checked at once by the injection of tepid water; for which purpose I am in the habit, previous to the operation, of filling a syringe with it, and holding it in readiness for use if required. If a strong solution is used (*e. g.*  $\mathfrak{z}$ i to  $\mathfrak{z}$ i), we must be careful not to take up so much fluid with the brush that it drops upon the drum, as the applications which are appropriate to the walls of the canal cannot always be applied with impunity to the delicate structures at the bottom of the meatus. In cases where the drum participates in the disease, as usually happens, a weak solution (*e. g.* potassa fusa, gr. iij to  $\mathfrak{z}$ i of water) may be used as an injection night and morning, which is sufficiently strong to improve its diseased condition in most cases. A strong solution ( $\mathfrak{z}$ i to  $\mathfrak{z}$ i of water) may usually be painted on the walls of the meatus every two or three days, but the more severe the affection, and the weaker the application, the oftener must it be repeated. In the intervals between the applications—which I never intrust to the patient if the solution is strong—I direct him to syringe out the ear twice daily with tepid water, as before mentioned. The beneficial effects of this treatment are sometimes very marked; the hearing often improves after a single application, the uneasiness in the ear subsides, the meatus becomes wider, and a large quantity of serous fluid exudes, which accounts for the improvement. If the treatment is to be successful, each successive application will be found to improve matters; the amount of serum exuded will gradually diminish, and the meatus assume its healthy appearance. After the disease appears to be gone, a weak solution of potassa fusa (gr. iij to  $\mathfrak{z}$ i of water) may be painted on the canal every day or two for a short time. Some recommend the use of a solution of nitrate of silver ( $\mathfrak{z}$ i to  $\mathfrak{z}$ i), which is used in the same way as the potassa fusa solution, but it is not nearly so effectual. Leeches are of no use unless acute pain occurs in the ear, indicating an acute attack of inflammation, and blisters behind the ears, recommended by Toynbee and others, are, in my experience, perfectly useless.”

33. *An unusual Abnormal Condition of the Mucous Membrane of the Tongue and Mouth.*—DR. NELIGAN describes in the No. of the *Dublin Quarterly Journ. of Med. Sci.* for August last a very remarkable and highly interesting case. The subject of it was a gentleman who presented himself for examination for life insurance, and the only feature worthy of notice (all else being perfectly healthy) was, that “the tongue was singularly affected, the natural membrane covering it and the inside of the cheeks being changed into a thick white skin like a kid glove, and uneven on the surface.” Although the author had seen nothing like



it before, and could give no opinion regarding it, he thought it well to advise an extra rate of five or seven years to be charged, "the chief reason being, that if any accident occurred to the tongue in its abnormal state cancer might result." About four years and a half after this the patient accidentally bit his tongue; it became very sore, and he was in consequence unable to attend for examination for a further assurance which he was desirous of effecting, and the further history of the case is thus given: "It seems that, as the result of this bite, a small tubercle about the size of a pea formed on the edge of the tongue, beneath the mucous membrane, its situation being on a level with the molar teeth. For this he sought the advice of some of our eminent surgeons, who differed in opinion as to the necessity of an operation, the result being that he placed himself under the care of one of them who treated the disease with caustic applications. After some time, however, hemorrhage set in, necessitating an operation which he survived only a few months, cancer having invaded the glands of the neck."

### SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

34. *Rapid Spontaneous Cure of Popliteal Aneurism.*—CAMPBELL DE MORGAN, Esq., Surgeon to the Middlesex Hospital, relates (*Med. Times and Gaz.*, Nov. 22, 1862) the following very remarkable and perhaps unique case of this, and one which opens a wide field for speculation as to the cause of the sudden arrest of the pulsation in the aneurism.

"George H. was admitted into the Middlesex Hospital, under my care, on January 4, 1862. He was a tolerably healthy-looking man, rather below the average height; his muscular system was well developed. He had been once a chimney-sweeper; he then became a stoker; and was now a shoemaker. His habits were somewhat intemperate.

"He was sent to the hospital by Mr. Shepherd, a former pupil of the hospital, to whom he had applied in consequence of a painful swelling in the right ham, and who, on recognizing the nature of the case, at once sent him to the hospital.

"The swelling was at this time small, and situated entirely between the tendons, which were not displaced by it. It was about two and a quarter inches in diameter. The knee was an inch more in circumference than the opposite one. The tumour pulsated strongly, and gave rise to a considerable amount of pain. There was no evidence of any cardiac or renal disease, or of diseased arteries elsewhere. The pulse was 72, regular and firm. The aneurismal thrill and bruit in the tumour were very well marked.

"The account he gave of the occurrence of the tumour was, that on the day before Christmas-day, after putting himself out of breath by running, he was shutting up the shop windows, when he felt something give way in the ham, and a small lump appeared. For a day or two he paid no attention to it, but three days after he felt an aching pain, and noticed that the lump beat strongly. Five days after its first appearance, *i. e.*, December 29, he was unable to walk, and the leg was stiff. Two days later, the pain and throbbing had so much increased that he was obliged to give up work.

"On his admission, an attempt was made to treat the case by Mr. Ernest Hart's plan of bending the leg on the thigh. The flexion stopped the pulsation; but in a short time the posture became so irksome to him that he removed the bandages, and would not again submit to the treatment.

"Four days after, the treatment by pressure was begun, the pad of the tourniquet being placed about the situation of the junction of the upper and middle third of the thigh. A moderate amount of pressure checked the pulsation in the aneurism. The instrument was to be worn during the day, with occasional intermissions, as at meal-time, and it was taken off at night. The tumour had at this time increased a little, and measured over two inches and a half in diameter.



"At first he bore the pressure pretty well, but he was evidently not very intelligent, and was, moreover, somewhat self-willed, so that he did nothing towards aiding the efforts of the surgeon. In three or four days after the application of the pressure, he became restless and feverish. The pulsation was not so marked as at first, but this was in some degree owing to the general swelling of the limb from the pressure. Still the pressure was maintained, and the pulsation was generally kept in check. On the eleventh day, however, the pain in the tumour increased, and the tumour itself was evidently larger. The pain was so severe as to prevent his sleeping. Although he suffered as much when the instrument was off as when it was on, he thought the pain was brought on by it, and was very averse to continuing its use. By the aid of morphia internally, and of lead and opium lotion to the knee, the pain was for a time relieved. On the thirteenth day, the pain having been very severe during the previous night, he was suffering so acutely in the tumour, and he had become so excessively irritable, that no persuasion would induce him to have the instrument reapplied on the thigh. I got him, however, to try the Read's compressor, which encircles the pelvis, and acts on the artery at the groin. A moderate amount of pressure served to stop the pulsation. At this time the beat was far more violent than at the time of his admission, and the tumour was still increasing in size. It was, nevertheless, somewhat more solid. The skin was red, tense, and shining. The arteries around the knee could be felt pulsating distinctly. Although no pressure had been used since the previous afternoon, the pain in the tumour and about the knee was extremely severe. There was also considerable tenderness; the examination of the part gave rise to pain; but still it seemed as if it was rather the skin than the deeper parts which was the seat of this, for deeper pressure did not appear to increase it. The pain appeared to be more due to the great tension of the tumour than to any inflammation within it.

"I had, at this time, little hope of being able to continue the pressure treatment under any modification, and directed the house surgeon to call my colleagues to a consultation on the following day, believing that it might be necessary to tie the artery. The Read's compressor was meanwhile applied, in the hope that the patient might be able to tolerate the pressure in a new situation for a time, and that the violence of the pulsation might be checked until it was determined what course should be pursued. It was put on at 2.30 P. M. He only allowed it to remain for about a quarter of an hour; then he took it off, and declared that he would undergo any operation, but that he would not bear the pressure any longer. Still it was not the pressure which was causing his sufferings; they continued after the instrument was removed; and the house surgeon, Mr. Marshall, found him, shortly after he had removed it, in such violent pain, that he gave him a full dose of opium. This produced no immediate effect, and a quarter of an hour afterwards Mr. Marshall administered a hypodermic injection of morphia. At this time, about a quarter past three, the tumour was beating as violently as ever. About twenty minutes afterwards, on the house surgeon going into the ward, the patient called his attention to the fact that the pulsation had ceased, and told him that this had taken place very shortly after he had left the ward, and, as he (the patient) believed, suddenly. On examination, it was found that no beating whatever could be detected. The man's sufferings were ended. The pain was trivial, compared with what he had been enduring. The tumour felt firm and doughy; the general tension of the limb was less, but it presented nothing remarkable in temperature or colour.

"From this time there was no trace of pulsation, nor could any sound be heard through the stethoscope. On the following day, the tumour was considerably smaller, quite firm, and free from pain and tenderness; the engorgement of the limb was subsiding rapidly. For many days, the leg, below the knee, was a few degrees warmer than the opposite leg, as is frequently observed after ligation of the vessel. None of the arteries of the leg or foot could be felt to beat, while the vessels around the knee were large, and pulsated vigorously. The femoral artery could be traced by its pulsations from the groin to within an inch of the tumour. A cure was effected, in short, much in the same way, so far as the appearance of the sac and its contents was concerned, as if a ligature had been placed on the femoral artery."

35. *Garibaldi's Wound*.—The discussion which has lately excited the public as well as the profession, as to whether or not the ball with which the illustrious Italian patriot was injured, remained in the wound, has been definitely solved. Professor ZANETTI actually removed the projectile on the 23d of November last, thus confirming the diagnosis of Nélaton.

Respecting this favourable result M. Nélaton made the following remarks to his class at the Hôpital des Cliniques:—

"When we consider the variety of opinions which have been offered respecting the presence of a foreign body in the wound, it is evident that the favourable result lately obtained would have been very long delayed had we not means of accurate diagnosis. Let me remind you that the wound is on a level with the anterior edge of the inner malleolus, which latter has been fractured by the ball; the wound runs in a transverse direction, and the probe, introduced about one inch into it, came in contact with a hard body. The sound heard on striking was dull, and very unlike that produced by meeting with necrosed or carious bone. The ball was lodged in front of the neck of the astragalus, though its presence could not be detected by examination of the instep in consequence of the tension of parts in that region. I was, however, perfectly certain that the ball was there, and advised gradual dilatation. But M. Porta, who explored with his finger, did not agree with me.

"On my return to Paris, I endeavoured to contrive exploring instruments which should convince those who were not of the same opinion as myself. I thought, first, of a sound ending in a kind of file which could take off a few metallic particles. I had some constructed; but M. E. Rousseau gave me the idea of an instrument which would bring away particles of metal. We had, therefore, a probe made, to the end of which was fixed an olive-shaped body, made of unpolished china, upon which mere contact would leave a mark of the projectile, and prove its presence. M. Charrière made several instruments of this kind, composed of a silver stem, ending in a china knob. The mere rubbing of this instrument against lead is sufficient to make a stain, which neither the soft parts nor the morbid secretions could obliterate; simple rotation of the instrument upon its axis fixes upon it a kind of meridian.

"But affirmations of mine are not sufficient—proof is the main thing; nor has this been wanting; for, with this instrument, Professor Zanetti became so certain of the presence of the ball that he forthwith extracted it.

"Other instruments have been proposed to diagnose a ball at the bottom of a wound. M. Favre, Professor at Marseilles, has invented the following: Two conducting wires are placed in a sheath, or the two electrodes may be covered by an isolating substance. These wires are in communication with a battery of only one couple, and a galvanometer is fastened on one of the wires. If you introduce the end of these into a wound, the contact of the soft parts, the bones, or pus, is not sufficient to establish a current; but if the ends come in contact with a metallic body, the needle of the galvanometer will rise, this being a proof that the circuit is complete. Only one couple, however, should be used, so as to avoid the decomposition of the fluids in the wound, which decomposition would immediately give rise to a current."

36. *Old Gunshot Injury of the Tibia; Recent Fracture of the Femur*.—Mr. TUFNELL exhibited to the Pathological Society of Dublin (Jan. 25, 1862) the tibia of an old man, aged 78, who, 52 years before, at the battle of Busaco, had been wounded by a musket-ball. The bullet had lodged in the cancellated structure of the head of the bone, and been removed from thence by means of a trephine. The cavity formed by the ball had never filled up, but remained an open, discharging wound, lined by a pyogenic membrane, and daily secreting a quantity of fetid pus. The integuments were adherent around the edge of this opening. No treatment had been adopted beyond keeping the part clean, and placing over the opening into the bone a piece of linen smeared with grease.

The presence of this cavity in the head of the bone had not caused much annoyance, and for five-and-forty years he had laboured regularly as a brick-layer's assistant.

About six years since, finding himself to be getting infirm, he became an in-



pensioner of Kilmainham Hospital, where he remained until the period of his death, which arose in the following manner: Like most old soldiers he was given to drinking, and took his liquor freely, but not to prejudicial effects, until two days before his decease, when he got very drunk, and fell helplessly whilst crossing his room, fracturing the left femur through the trochanters by the direct violence of the blow.

When brought to the infirmary the limb was shortened, but not to any great degree. The foot everted; and before the groin a considerable projection formed. He complained of no pain, but was incoherent, and this, in all probability, resulting from intoxication more than shock. He had been suffering for some days from diarrhœa. Stimulants and support were given, but he never rallied, and died in 40 hours from the receipt of the injury.

Upon examination of the parts in the vicinity of the fracture, they, and indeed the whole thigh, on its front and outer aspect, were found gorged with black blood, every tissue being infiltrated with it. The fracture of the femur extended obliquely through both trochanters, the upper portion of the lower fragments being in front of and lying upon the upper fragment.

With reference to the cavity in the head of the tibia, it differed greatly from that observed in a somewhat similar case by the late Sir George Ballingall, of Edinburgh, and reported in his *Military Surgery Museum*, in this respect, viz., that the enlargement of the head of the bone was, in his case, excessive, whilst here its size was in no way affected.

In Sir George Ballingall's case the individual had lived to a very advanced period of life, labouring, too, for his bread, but working as a boatman; and, finding inconvenience from the oozing of pus, he had plugged the orifice with a wine bottle cork. Nature, to resent this irritation, had thrown out new bone, whilst absorption, by the pressure of the foreign body, had, at the same time, been going on from within, necessitating the enlargement of the plug, until, at the period of his death, it required a piece of deal as large as a bung, wrapped round with old linen, to stop the vent.

Each day the old veteran used to take out the stopper, and holding his leg over the side of the boat, wash out the cavity well with sea water, and then close it for 24 hours, when the process was repeated.

Mr. Tufnell was indebted to his friend, Dr. William Carte, physician and surgeon to Kilmainham Hospital for the opportunity of exhibiting this case.—*Dublin Quart. Journ. Med. Sc.*, Nov. 1862.

37. *Blow on the Head—Sudden Death two years after from the Injury.*—M. de CLOSMADÉUC communicated to the *Société de Chirurgie* a case illustrating the propriety of giving a cautious prognosis in cases of violent blows on the head.

A soldier, in leaping over a rampart, fell on his head. After some moments loss of consciousness, he recovered and returned to his quarters. He resumed his duties, and his health appeared uninjured. Nevertheless, he was affected at times with headache, which lasted for some hours, and sometimes for two days. Two years after his fall he died suddenly on the field during drill. For some time previously he had lost flesh, and his countenance was altered, but his intellectual functions and locomotive powers were unimpaired.

On *post-mortem*, an abscess was discovered in the white substance of the brain; this abscess was evidently not of recent formation. By the side of this abscess was a recent ventricular hemorrhage, produced by the sudden rupture of the septum which separated the abscess from the ventricle; and this hemorrhage had produced sudden death.—*Gazette Hebdom.*, 5 Sept. 1862.

38. *Reunion of Intra-capsular Fractures of the Femur.*—M. FABRI, of Bologna, has published some interesting cases in which reunion followed this ordinarily intractable fracture. The first was that of a man whose body was brought to the dissecting-room, and who had long used crutches. An intra-capsular fracture was discovered which had been perfectly reunited by the formation of an osseous substance. Previous to the occurrence of osseous union, however, so much displacement and separation of the fragments had taken



place that lameness resulted. The spongy substance of the head was united with that of the neck by the medium of a compact layer of new bone, four millimetres thick. In the second case (a man *æt.* 70), the circumstances were similar, only the union was by means of singularly dense cartilage, instead of bone. In neither of these cases was there any penetration of the neck of the femur into the spongy tissue of the great trochanter. In a third case (a man *æt.* 77) the patient was able to walk in less than a year after the accident, which he survived for seven years. Complete osseous reunion was found, on post-mortem examination, to have taken place.—*London Med. Rev.*, Aug. 1862, from *Presse Médicale Belge*.

39. *Portion of Food Impacted in the Larynx*.—MR. SPENCE showed to the Medico-Chirurgical Society of Edinburgh (2d July, 1862) a very remarkable preparation, for which he was indebted to a former pupil. A little boy, between eleven and twelve years of age, had been for some time subject to paroxysms of difficult breathing, and in the intervals had huskiness of the voice. While at dinner one day, he was suddenly attacked with urgent dyspnoea, which his parents, however, believed to be merely one of his ordinary paroxysms. A medical man was immediately sent for, and arrived very soon; in the meantime, the parents had a warm bath prepared, which was the treatment usually adopted for the spasmodic attacks. On his arrival, the doctor had him put in the bath, and passed his finger into the pharynx; cold water was poured over the boy, and consciousness was restored. On being asked if he felt any pain, he placed his hand over the windpipe, and said "here;" and immediately expired. On post-mortem examination, the whole of the lower part of the larynx and upper part of the trachea was occupied by a piece of meat, so firmly impacted, that, as could be seen, a bristle could hardly be passed along. Under these circumstances, it was very remarkable that the boy could have breathed for a single instant. In writing to make some inquiries regarding the history of the case, Mr. Spence had been particular to ask whether the body might not have been pushed down to its present situation. The answer was decidedly in the negative, the medical man having merely swept his finger round the back part of the mouth. A number of enlarged glands had been found pressing upon the trachea, which had probably been the cause of the previous attacks of difficult breathing.—*Ed. Med. Journ.*, Sept. 1862.

40. *Tracheotomy Tube dropped into Left Bronchus*.—MR. SPENCE mentioned to the Medico-Chirurgical Society of Edinburgh (June 4, 1862) the particulars of a rare accident which had come under his notice. A man had had tracheotomy performed several years ago by Mr. Edwards, and had since worn a double tube. Yesterday, while riding on horseback, the rim of the tube, which had been gradually wearing, gave way, and it fell, as the man expressed it, "into his chest." The man went at once to Mr. Edwards' house, but as that gentleman was from home, his assistant put in another tube and sent him to the hospital, where he came under Mr. Spence's care. When Mr. Spence saw the patient he was breathing quite freely, and the sounds on auscultation were very much the same on the two sides of the chest. A probe was in the first instance passed down into the right bronchus (into which it was generally said that foreign bodies fell), but nothing was felt; it was then passed into the left bronchus and the tube was at once felt. An attempt was then made to extract the tube without enlarging the wound, but was unsuccessful. Chloroform was then administered, the opening was enlarged by cutting through two or three of the rings of the trachea, a pair of bent forceps was introduced, the tube was seized, drawn to the opening, and then extracted. Mr. Spence observed that so far as he knew this was the only case of the kind, but it should teach cutlers to make their tubes in two lateral halves and then join them together; for when, as at present, the shield was fastened to the tube, the soldering must in course of time give way.—*Ed. Med. Journ.*, Aug. 1862.

41. *Use of Nicotia in Tetanus and in Poisoning by Strychnia*.—PROFESSOR S. HAUGHTON laid before the Royal Irish Academy, in 1856, some experiments

made by him on the physiological action of nicotia and strychnia on frogs, which appear to show that the action of these two alkaloids are antagonistic to each other, at least in frogs. After reading a case related by Dr. O'Reilly, in which an infusion of tobacco leaves had been successfully administered in a case of poisoning by strychnia, it occurred to Mr. H. that nicotia might be usefully employed in tetanus as well as in strychnia poisoning. Through the kindness of the physicians of several of the Dublin hospitals, Mr. H. has had the opportunity of testing the correctness of his views, and in a communication made to the College of Physicians in Ireland (March 19, 1862), he relates several cases in which the nicotia was used with advantage.

The first case was one of tetanus following an extensive and severe burn, in which the nicotia relieved the agonizing pain, and relaxed the spasms, but the patient died from the attendant surgical double pneumonia.

The second case was one of idiopathic subacute tetanus from exposure to cold, in which during eleven days 26.4 grains of nicotia was given. The patient recovered.

The alkaloid in this case produced: 1. Immediate relaxation of the muscles of the abdomen, back, and diaphragm.

2. It caused cessation of delirium.

3. There was a slight tendency to cause increased circulation, to the extent of 10 beats per minute.

4. It caused profuse sweating, which exhaled an intolerable odour of snuff, not of tobacco.

5. It had a tendency to produce deep sleep.

6. It failed to control quickly the adductor muscles supplied by the obturator nerve; and even when the hamstring muscles gave way, the adductors refused.

The third case was an attempted suicide with strychnia, in which an infusion of tobacco was given, which produced vomiting when all other means had failed, and further counteracted the action of the strychnia already absorbed.

Mr. H. also gives a brief notice of a case of traumatic tetanus, under the care Mr. Tufnell, at Baggot Street Hospital, successfully treated by nicotia.

The nicotia was given in doses of half, 1, 2, and  $2\frac{1}{2}$  drops, each drop containing six-tenths of a grain of nicotia.—*Dublin Quarterly Journ. Med. Sci.*, Aug. 1862.

42. *On the Use of Iodine Injections in Large Acute Abscesses.*—M. COSMAO-DUMENEZ having had the opportunity of observing, under M. Demarquay, the great utility of iodine in the treatment of acute inflammations and of large abscesses, which ordinarily are so tedious in their course, is desirous of calling attention to the subject. As examples, he relates two cases of deep-seated abscesses—the one in the region of the groin, and the other in that of the buttock—in which a few iodine injections proved rapidly curative, notwithstanding that the amount of pus discharged on opening the abscesses had been very large. Most of the cases observed by the author under M. Demarquay were abscesses, accompanied by much detachment of skin, in the groin, axilla, popliteal space, &c., and examples of phlegmonous erysipelas. The tediousness of the ordinary modes of treatment, even aided by compression, and the frequency with which formidable accidents arise, are but too well known; while the iodine expedites the cure, and obviates these various inconveniences. By its aid, according to M. Monod, suppurative is converted into adhesive inflammation, plastic lymph taking the place of pus. Moreover, a portion of the iodine injected becomes absorbed into the system, as manifested by its appearance in the secretions, and may influence the deteriorated constitution beneficially. The formula employed by MM. Monod and Demarquay is: water, 100; alcohol, 50; iodine, 5; and iodide of potassium, 5 parts, all by weight. When there is great sensitiveness, this may be diluted by one-fourth or one-half of water. As the injection should be made to penetrate into all the sinuosities of the purulent cavity, a syringe strong enough to throw it with force must be employed; and M. Demarquay annexes to the mouth of the syringe a gutta percha catheter. The cavity should be first cleansed out by means of tepid water, the iodine being injected as soon as this has been gently pressed out. The catheter is then to be removed,



and any of the iodine allowed to run out which may do so unaided by pressure. If there are several apertures, they should all be injected—unless, indeed, the iodine entering by one runs out by the others. At the end of forty-eight hours, unless the pus has changed in nature and quantity, the injection must be repeated; and M. Monod states that he has several times seen this mode of treatment cut short those troublesome suppurations which gradually invade almost an entire breast—a disease thus becoming terminated in ten or fifteen days which otherwise might have continued for months.—*Brit. and For. Med.-Chir. Review*, Oct. 1862, from *Bull. de Thérap.*, t. lxii.

43. *Treatment of Chronic Swelling of the Bursa Patellæ, by Puncture and the Injection of a Solution of Iodine.*—Dr. ROBERT KIRKWOOD states (*Glasgow Medical Journal*, Jan. 1862) that the ordinary method of treating chronic swelling of the bursa patellæ, being troublesome, painful, and tedious, and the result seldom satisfactory, he was induced, in 1859, to try the effect of puncturing the tumour, evacuating its contents, and injecting a solution of iodine. The result was satisfactory, and he has now treated three cases by this plan.

His "first case was that of a young woman, a domestic servant, who more than a year before had observed a small, painless swelling, for which she could assign no cause, in front of her right knee. It increased slowly in size, and when I first saw it, was about as large as an orange, and soft and fluctuant. She complained only of the weakness and inconvenience which it occasioned her. With a trocar and canula, such as is used in the operation for hydrocele, I punctured the swelling at the most dependent point, and after evacuating the straw-coloured serous contents, injected a solution of iodine and retained it for a minute or two. The canula being now withdrawn, a piece of lint was placed over the wound, and a short straight splint applied along the limb and retained with a roller. The following day, the patient complained of a little pain in the knee, and there was also slight swelling, which was fluctuant. I passed a probe along the course of the puncture, and evacuated a small quantity of a brownish-coloured serous fluid. There was no constitutional disturbance; the local was so trifling as scarcely to deserve mention; and by the fifth or sixth day, I forget which, the knee, though a little weak, was perfectly well.

"The second case, also occurring in a young domestic servant, bore considerable resemblance to the first, with the exception that from its history it appeared to be the consequence of an attack of acute bursitis; and besides the weakness and inconvenience to which it gave rise, was at times also more or less painful. It was treated in precisely the same way and with the same satisfactory result.

"The third case occurred in a young man, a joiner, and was more recent than the others. The stiff, firm, leathery feel of the tumour gave the idea of a thickened sac, and this, after puncture, was found to be the case. The contents were sero-sanguineous. On two different occasions I passed a probe along the course of the puncture to evacuate a small quantity of fluid; but in five days the knee was well, though by my advice patient did not resume his work till the expiry of a week from the date of the operation.

"It is now about three months since I operated on this case, and the cure up to this date seems perfect. Some thickening still remains, but under the use of iodine paint it has diminished considerably. The second case was operated upon in June of last year. The patient has gone from under my observation, but her knee, her mother informs me, is strong and well, and shows no indications of anything having ever been the matter with it. I saw my first case the other day; no trace remains, and patient states that her knee is as strong as ever.

"In each case, in consequence of a slight feeling of weakness remaining after the operation, though less than before it, I recommended an elastic knee-cap to be worn for a few weeks, by the end of which time the feebleness had disappeared."

44. *Subcutaneous Treatment of Boils and Carbuncles.*—Mr. J. G. FRENCH, Surgeon to St. James's Infirmary, Westminster, states (*London Med. Review*, Sept. 1862) that he has occasionally, during many years, adopted the following mode of treatment of boils and carbuncles with great advantage.



"The extent of the induration of the integument is first carefully examined, and then a tenotomy knife is passed horizontally underneath it, the blade turned upwards, and, the forefinger of the left hand serving as a guide upon the upper surface of the tumour, the hardened structure is cut through, taking care not to wound the surface of the skin; it is, in fact, a subcutaneous division of the disease, and is carried to the utmost extremity of the induration.

"The disease, previously spreading, is at once arrested in the direction of the knife, but it is necessary to make a second puncture at right angles with the first, and thus a crucial incision, or it will still spread in the opposite direction. The bleeding is sometimes considerable, sometimes trifling, and when this has ceased, the whole surface of the tumour should be covered with collodion.

"Immediate relief is felt by the patient as the result of this proceeding, and he is able at once to pursue his ordinary avocations.

"The inflammation speedily resolves, or if any suppuration whatever occurs, it is in very small quantity, and easily finds vent through one of the punctures.

"This operation being somewhat slow and painful it is only where an immediate result is greatly desired that I venture to adopt it, preferring generally the quicker method of dividing the integument completely, but it is interesting to know the fact of its invariable efficacy. An inquiry is often made by the patient whether the malady will return elsewhere if thus suddenly arrested? I do not find that a second boil or carbuncle occurs when thus interrupted more frequently than when the disease is left to take its course; on the contrary, where poultices are used a recurrence is frequent; indeed, this remedy, when used for other disorders, often seems to produce the disease.

"With regard to larger and more neglected carbuncles, where the life of the patient is endangered by their extent, it is worth while making the remark that the disease can at any time be arrested by the knife *while it is still spreading*. But the *crucial* incision is often insufficient where the disease has acquired the size of a cheese plate. It will spread at the circumference between the longitudinal and lateral incisions at some point or other, and an incision made here at once still arrests its progress. A large carbuncle will, therefore, often require to be *starred* to arrest it completely.

"What is called *opening* a carbuncle, that is, making a free incision simply or crucially in the centre, does not, so far as my observation goes, appear to do much good; and I think the doubt about the good effect of operative procedure, which exists in the minds of some, is due to the observation of this method alone."

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45. *How to Relieve Pain in Diseased Bladder.*—The presence of urine, and more especially of uric or phosphatic calculi or concretions at the *bas-fond* of a diseased bladder, sometimes produce violent pains in the bladder, and render all movement painful. In such cases, if the patient be placed on an inclined plane, which, by raising the lower part of the pelvis, throws the contents of the bladder towards the upper and posterior part of the cavity (which is much less sensitive), relief is almost immediately produced, even though other means have been tried in vain.—*Brit. Med. Journal*, Feb. 1, 1862, from *Rev. de Thér. Méd.-Chir.*, Dec. 1, 1861.

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46. *Deafness Consequent on Rheumatism—Noise in the Ears.*—A case of deafness consequent on rheumatism, treated by Mademoiselle Cleret's method, has been related by Dr. DELIOUX. A cannonier, 51 years of age, had an attack of acute rheumatism six months previously, which passed into the chronic form, and was accompanied by deafness of the left ear, with diminution of hearing in the right ear, frequent buzzing at both ears, but no discharges. Received into the Marine Hospital at Toulon, he was subjected to the instillation of ether in both ears. He immediately felt a kind of expansion in the interior of the ear, accompanied by a slight pain, but at once his conception of sounds became less confused. Next day he declared that he heard with his right ear as well as before his illness. The instillation was now only applied to the left ear, and repeated three times on the following day. On the fourth day the hearing of both ears was perfectly restored. The general rheumatism was treated with

sulphureous baths, and the vinum Ardurani during the following month, under the apprehension that the deafness might return as long as any rheumatism continued.

The composition of vinum Ardurani is as follows: Bulb of colchicum 30 parts; leaves of fraxinus ornus 38 parts; Malaga wine 300 parts. Macerate during eight days and strain off; then add tincture of aconite 8 parts; tincture of digitalis 5 parts. A large teaspoonful to be taken morning and evening.

Dr. Delioux gives two other cases of rheumatic deafness treated in the same way, but in which there was only an improvement and not a complete cure. This he explains by the general disease predominating over the local affection.

Among other facts confirming this view respecting the connection between noises in the ear and imperfections of hearing with rheumatism, and in an especial manner proving the use of instillations of ether in this particular kind of deafness, one related by M. Bellemont should not be omitted. A labourer, 60 years of age, subject to rheumatic pains in his limbs, found after some time that they all became concentrated in his head, and during a year he became so deaf as to give up the enjoyment of conversation. He described a sound in his ears like that of a swarm of bees. After an ineffectual trial of several remedies, M. Berlemont applied two instillations of ten drops of ether at the interval of a quarter of an hour. Immediately he began to hear distinctly. The same treatment has been continued, and deafness and noise in the ears are now completely removed.

A series of similar facts has been received from M. Coursier, the most remarkable of which occurred in children complaining of noises in the ears. In one of these the patient, seven years of age, could not bear the application of the ether. By mixing it with one-half of glycerine the object was accomplished. M. Debout, however, states that although glycerine succeeds in eczematous deafness, yet that it exercises a prejudicial influence in cases of nervous deafness, even when an amelioration has been obtained by ether.—*Glasgow Med. Journ.*, July, 1862, from *Journ. de Med. et de Chirurgie*.

47. *Difficulties and Dangers attending Catheterism of the Eustachian Tube.*—In a recent article M. TRIQUET describes the principal difficulties attending catheterism of the Eustachian tube, and the accidents to which it may give rise. Difficulty may arise on the part of the patient from extreme timidity, or from indocility in children; and both these may necessitate the use of chloroform. Excessive narrowness of the nasal fossæ sometimes requires the use of a sound of small calibre and but slightly curved, which in such cases must be introduced gently under the lower turbinated bone, with the point directed towards the external wall of the fossa. Sometimes the narrowness is so great that the catheter, on reaching the middle of the nasal fossa, is arrested, and as it were grasped between the septum and the turbinated bone, or between the turbinate bone and the upper jaw. If this be found to occur, and the point of the instrument, being in the proper direction, cannot advance, it must be withdrawn, and again introduced after the patient has been allowed a few minutes' rest.

Difficulties may also arise from the configuration of the inferior nasal fossa. Extreme narrowness may be caused by chronic inflammatory thickening of the mucous membrane; by polypi or fleshy vegetations; by hypertrophy of the lower turbinate bone, or by greater or less unnatural elongation of the bone, with a faulty direction of the curve; by deviation of the septum of the nasal fossæ; by exostosis from the ascending process of the superior maxillary bone, or from the lower turbinate bone. Extreme sensibility of the pituitary membrane, and the pain produced by the least touch, also constitute a serious difficulty. Difficulties may also arise in the introduction of the catheter, from not choosing a proper mode of operating, from using a too large or too curved instrument, or from giving it a wrong direction. M. Triquet introduces the instrument directly into the inferior meatus, with the end resting against the external wall. If it is gently carried on in this direction, the point of the instrument must infallibly reach the orifice of the Eustachian tube, which lies immediately behind the inferior meatus.

The accidents arising from the operation may be local or general. The local



accidents are: 1. Laceration of the inferior part of the nasal canal. This is not of much importance; it causes only slight pain and one or two drops of blood. 2. Extraordinary sensibility of the pituitary membrane may render the contact of the catheter so painful as to cause even the most courageous patient to cry out. In some persons, the contact of the sound with the pituitary membrane produces sneezing. 3. Another result is excessive lachrymation. More or less lachrymation very often follows the first introduction of a sound into the nasal fossæ. Sometimes, the tears appear only at the inner angle of the eye; but in lymphatic children, in nervous females, and even in impressionable men, the catheter scarcely touches the mucous membrane before the conjunctiva of the same side becomes rapidly ingested, the eye becomes moist and is turned upwards, and tears flow in abundance. These phenomena are not attended with pain, and generally pass off in a few seconds. Nevertheless, the possibility of their occurrence should suggest great caution in employing catheterism of the Eustachian tube in persons subject to disease of the eye. 4. A few drops of blood often flow during the operation, probably from the Schneiderian membrane being grazed or lacerated by the end of the instrument. But in subjects in whom, as the result of repeated attacks of coryza, the mucous membrane is red and inflated, and, as it were, studded with papillæ full of blood, the simple contact of the instrument may give rise to a true epistaxis, which may always be promptly arrested by the inspiration of a little cold water. 5. The operation may be disturbed by a nervous cough; but this is not of much importance. 6. As a result of simple or granular chronic pharyngitis, or of repeated quinsy, the tonsils may have remained hypertrophied, and it is not uncommon to meet with a spasmodic contraction of the pavilion of the Eustachian tube, when the catheter is about to enter the orifice. In nervous subjects, as soon as the catheter touches the pituitary membrane, the velum palati is convulsively drawn upwards. During these violent contractions, whatever be their cause, the peristaphyline muscles, inserted near the mouth of the Eustachian tube, completely effuse the opening, so that an instrument cannot pass it without effort. If this spasmodic contraction occurs only at the moment when the catheter enters the tube, the point is expelled and falls into the pharynx, and the operation must be repeated. 7. If the surgeon employ too much force to overcome the contraction of the muscles, the mucous membrane may be torn, so as to give rise to the production of emphysema at the first attempt at deglutition or at inspiration. If the patient make a sudden movement of deglutition, or if the surgeon wish to blow in a little air for the purpose of exploring the tube, the patient falls as if struck by lightning; he raises his hand to his neck; the eye is haggard, the face congested, the mouth open, and the voice lost. The symptoms resemble those of œdema of the glottis in its last stage. On forcibly drawing down the tongue with the finger there is perceived to be considerable emphysema, raising the whole of the mucous membrane of the pharynx and even invading the larynx, especially the aryæno-epiglottic folds. It is requisite only to tear with the nail of the finger which holds down the tongue, one of the emphysematous projections of the mucous membrane; the air escapes and the patient recovers. M. Triquet states that death has sometimes occurred from this cause in the practice of London surgeons. 8. Rupture of the membrana tympani, according to M. Triquet, is liable to be produced when air is pumped into the Eustachian tube by means of Kramer's apparatus; and it may occur even when simple insufflation with an India-rubber bag is employed. Chronic inflammation of the membrane may predispose to this accident. 9. If too frequently repeated, catheterism of the Eustachian tube irritates the mucous membrane, and may give rise to traumatic inflammation. But, sometimes, even the introduction of a small catheter may give rise to a painful inflammation which may extend to the cavity of the tympanum. The general accidents that may follow catheterism of the Eustachian tube are: rigors and fever; facial neuralgia; obstinate headache; and an increase of the deafness, or of the noises in the ears, for the relief of which the operation has been undertaken. Suspension of the treatment is generally sufficient to arrest these accidents.—*Dublin Med. Press*, Aug. 6, 1862, from *Gaz. des Hôp.*



48. *Double Inguinal Hernia on the Same Side.*—Prof. ENGEL states that he has in his practice seen two instances of this rare complication. Both patients were males; and in both the herniæ were on the right side. The internal hernia in each case was greater than the external. The herniæ descended only as far as the middle of the spermatic cord, and lay with their lower broad extremities in close apposition, so that, until the integuments were cut through, there was nothing to denote the presence of a double hernia; the tumour appearing to be an external inguinal hernia. The fascia transversa that covered the internal hernia was very thick, and had a truly aponeurotic appearance.—*Brit. Med. Journal*, Feb. 1, 1862, from *Wiener Medizin. Wochen.*, Oct. 5, 1861.

49. *What Direction does a Hernial Sac take when Reduced.*—Prof. ENGEL says that, when an external hernia is reduced, there is some trouble in pushing the sac up through the whole extent of the canal. The sac of the internal hernia, on the other hand, can be pushed with much greater facility into the abdomen, and when there does not lie opposite the anterior opening, but glides along the horizontal branch of the pubic bone and forms a peritoneal pouch, which then descends by the side of the bladder. The sac of an external hernia generally remains in the neighbourhood of the posterior opening of the inguinal canal, where it throws the peritoneum into irregular folds: it only rarely forms a peritoneal pouch as in internal inguinal hernia.—*Ibid.*

50. *Metallic Sutures.*—Mr. W. N. CHIPPERFIELD, Staff Assistant Surgeon, Madras, reports (*Madras Quarterly Journ. Med. Sci.*, July, 1862) very favourably of metallic sutures introduced into use by our ingenious countryman Dr. M. Sims. Mr. C. says, "I will not go so far as to say that ulceration never does take place in the track of a metallic suture, because I have seen a few instances in which it did occur. But it may safely be affirmed that, as a very general rule, there is no irritation set up by metallic sutures and that they may be left until the wound has entirely healed, without any ulceration occurring around them. Those who use these sutures must have had numerous opportunities of remarking the very great advantage which they possess, in this respect, over the non-metallic ones.

"A curious instance occurred in my practice. I used iron wire sutures to close a wound after removal of a tumour from the back. When union was complete I directed the sutures to be removed, and the person to whom the removal was intrusted overlooked one of them. Three months afterwards the patient presented himself to show that he was quite cured, but just as he was leaving the room he remarked, 'sometimes my skin feels irritable, and then, when I rub my back, I feel a sharp point like that of a pin where the wound was.' Drawing my finger along the cicatrix I detected this sharp point and found that it was one extremity of a suture which had not been removed, the rest having, probably, become imbedded in the few granulations which sprung up at some points before union was complete. I drew upon the wire so as to expose the twist, divided and removed the suture; and ascertained that, although it had been there for three months, no irritation, ulceration or suppuration had resulted from its presence.

"When we remember how many surgeons must have had opportunity of noticing the very little irritation, if any, that attends the circuitous course which needles take when they have been accidentally introduced into the body, we can but feel surprise that metallic sutures did not long ago come into surgical use."

51. *Utility and Superiority of Metallic Sutures.*—M. OLLIER, Surgeon to the Hôtel-Dieu, Lyon, terminates a series of papers with the following conclusions: 1. Metallic sutures are less irritating than those of vegetable or animal origin; they divide the tissues less rapidly, are sooner and longer tolerated, occasion less suppuration in their track, and leave less apparent cicatrices. 2. It is not only on the results of a great number of operations in which we have employed these ligatures that we base our statement of their superiority, but also upon comparative experiments rendered as rigorously exact as possible; the advantages possessed by the metallic sutures of the same size over the organic become

still more striking when the very delicate metallic threads, which we call capillary, are employed. 3. The more delicate the thread is, the less it irritates and divides the tissues, this division being the result of ulceration, and not a mechanical action; in order that this advantage be realized, the flaps must not be submitted to too violent traction, for pressure being then exerted on an excessively narrow line, the thread acts in some sense as a cutting instrument: to prevent this inconvenience, the number of sutures must be multiplied, in order to distribute the resistance over a great number of points. 4. The superiority of the metallic threads consists in the following circumstances: (1), their delicacy, for we may give them the fineness of a hair, and yet preserve sufficient resistance; (2), the constancy of their volume, while organic threads notably increase in this through imbibition of the discharges; (3), the polish of their surfaces and their impenetrability by putrefiable fluids; and (4), the fixity with which they maintain the edges of the wound in contact, while the organic sutures become relaxed and float in their track when ulceration has commenced. 5. Of the various metals from which sutures may be made, iron is the most suitable, by reason of its greater tenacity and the facility with which it may be procured; by covering it with an unoxidizable metal, all the advantages are conferred on iron which appertain to other metals, which it might seem desirable to substitute for it by reason of their resistance to the reaction of organic liquids. 6. For autoplasmic operations, iron threads of a greater fineness than have hitherto been employed are very suitable; of the delicacy of a hair, they still possess sufficient resistance to allow of their being manipulated with safety and convenience, while so slight is the irritation which they give rise to (being, so to say, forgotten by the tissues), that they are often tolerated without giving rise to suppuration; they may be multiplied without inconvenience, and they may generally be employed without covering them with gold or tin; when they are intended to remain long within the tissues the iron should be galvanized, but in no case has their oxidation hitherto given rise to any serious inconvenience. 7. Metallic should, then, replace organic threads in all kinds of sutures; when they are fine, they are very easily passed through the tissues, and can be fixed by a greater number of procedures than the organic threads; their removal from amidst the tissues in deep-seated regions (as the vagina, velum of the palate, &c.), is the sole difficulty contingent on their employment, but this inconvenience cannot be considered as counterbalancing their advantages; the capillary threads are the only ones which are supple enough to admit of being easily removed. 8. It is a useful practice to use sutures of different sizes for different parts of the same wound; capillary threads are of great utility as "perfecting sutures" in autoplasty, when it is our object to obtain a perfectly exact union; for some operations large threads are required, as "sustaining sutures," to bring and keep together the base of the flaps, the edges of which are maintained in contact by capillary threads. 9. Metallic sutures may be left longer within the tissues, and they thus become a precious resource in wounds which, uniting slowly, require that their edges should be kept a long time in contact. 10. They may be advantageously employed as setons in small abscesses of the neck and face, when we wish to avoid producing visible cicatrices. We may also make use of them for the ligature of bloodvessels, and they are especially adapted for the operation for varicocele, allowing of the gradual division of the venous agglomeration by a very simple procedure.—*Brit. and For. Med.-Chir. Review*, Oct. 1862, from *Gaz. Hebdom.*, Nos. 9, 12, 17, 23.

52. *Horsehair as a Substitute for Wire for Sutures.*—Mr. T. SMITH, Demonstrator of Anatomy at St. Bartholomew's Hospital, states (*Lancet*, Nov. 8, 1862) that, with a view of finding a material for sutures as unirritating and as unabsorbent as wire, but more easy of adjustment and withdrawal, he performed during last spring a series of experiments on animals to determine the suitability of horsehair as a substitute for wire in certain cases. The horsehair used was such as is ordinarily sold by fishing-tackle makers. The experiments were performed upon dogs. The general results showed that there was no appreciable difference shown by the tissues in their tolerance of silver wire and horsehair. Both ma-



terials were equally unirritant; yet there was a difference in favour of horsehair in the greater facility of its adjustment and subsequent removal.

For the comparison between silk and horsehair as illustrating the relative merits of the two materials for sutures, he refers to the following experiments:—

“June 10th, 1861. Two wounds of equal length, dividing the entire thickness of the integuments, were made on opposite and corresponding parts of a dog's abdomen; four sutures were applied at equal intervals to each, horsehair being used to one wound, and fine ligature silk to the opposite. On the third day both wounds looked alike healthy, and having their edges in close contact. On the fifth day the edges of the wound with silk sutures was slightly reddened, and pointing a little between the points of suture; the opposite wound had united without suppuration. On the eighth day three out of the four silk stitches had cut their way out, and the next day the remaining one came away, leaving the edges of the wound just separated, but granulating healthily. Three days later the wound had almost entirely healed. At this time the opposite wound had healed up soundly around the tracks of the horsehair sutures, which remained *in situ*, exciting no irritation whatever, until the dog's death, a month after the commencement of the experiment.

“May 3d. The opposite femoral arteries of a dog were exposed to the same extent just below Poupart's ligament. Around the vessel on the right lower limb was passed a stout horsehair, and loosely tied; a silk suture being similarly adjusted round the opposite artery. A month after the operation the wound on the right side was all but healed, and was secreting a little serous discharge. At the same time the wound on the left side was swollen, its edges were everted and inflamed, and there was a profuse sanio-purulent discharge. Two days later the wound on the right side had healed around the track of the horsehair seton, which was retained. While around the silk on the other side there was profuse suppuration; the surrounding parts were red, tender, and much swollen; and as the animal's general health was suffering, and it was rapidly emaciating, the silk was withdrawn. The wound now speedily altered its character, and by June 20th was soundly healed. September 3d, four months after its introduction, the horsehair still remained around the right femoral artery, exciting no irritation, the parts being soundly healed around the track of the seton.

“The unirritating nature of horsehair as a material for suture is no less marked when applied to the tissues of the human body. It was used by Mr. Paget in a case of double entropion, the wound of the operation being in one eyelid secured with horsehair sutures, while the opposite was brought together with fine sewing cotton. At the end of a week three out of the four cotton sutures had cut out; while at the same time all four horsehair sutures remained firm.

“As a material for attaching the margins of the skin and mucous membrane after circumcision, or other operations for phymosis, I have found horsehair most useful, having employed it both in children and adults. In one case particularly, where a complete circumcision of the foreskin, with a free division of the mucous membrane was performed on a middle-aged gentleman, its good effect was remarkable. Six sutures were introduced, and excited so little disturbance that the patient was not kept for a single day from his business, which involved pretty active exercise. The wound healed without suppuration, and though left in, at the patient's request, some of them for fourteen days, the sutures caused no irritation, and were removed at last without difficulty. In the removal, the advantage of horsehair sutures over wire is considerable, since, unlike wire, which, after remaining a few days in a wound, stiffens into a metallic ring, horsehair, when cut just aside the knot, either retaining its original elasticity, springs open, or if it has been long soaked in the wound secretions, it becomes soft and pliable. I would recommend the use of this suture for wounds of the eyelid and other parts of the face, and to the loose integuments of the scrotum and penis: since to all these parts I have either applied the suture myself with good effect, or I have seen it used by others at my suggestion.

“But I can imagine that there are other uses to which it might be extended, and especially to facilitate the union of wounds of the conjunctiva. For the purposes of suture, long, white tail hairs are the best. Before being used they should be soaked for a minute or two in water, or they may be drawn once or



twice through the moistened finger-ends. The suture may be fastened off in a double knot, but if the hair is stiff, a third knot is often required. It may be removed in the ordinary manner, seizing the knot with the forceps, and dividing the suture just aside of it. It is scarcely necessary to remark, that horsehair, as a suture, is not suitable for wounds where there is much tension between the edges."

"P. S.—Since writing the above I have been informed that the subject of horsehair sutures has been treated of by Gustav. Simon, but having failed to meet with the publication in question, I am unable to refer to it more particularly."

53. *Encysted Tumours*.—Dr. HENLEY THORP makes (*Dublin Quarterly Jour. of Med. Science*, Feb. 1862) some interesting observations on this subject.

"No surgical subject," he remarks, "possesses greater interest than the pathological history of encysted tumours generally—the large size they are capable of attaining—the deep position they occasionally occupy in the visceral cavities, and their strange and unexpected contents invest these formations with an interest not subordinate to that of any others occurring in the organism. Although the mode of origin of growths such as those produced in the ovaries, amongst the abdominal and pelvic organs, at the bottom of the orbit, &c., cannot be explained upon the principles long ago suggested by Sir A. Cooper, the correctness of the views of this distinguished surgeon, as applied to superficial and subtegumentary wens and cysts, can scarcely be disputed; various circumstances connected with the pathology and symptoms of the tumours last referred to demonstrate their character—they are not new growths, but sebaceous follicles distended into sacs, by reason of imperforate or obstructed excretory orifices, and retained contents. Such swellings are commonly met with in situations where the sebaceous glands are largest and exist in greatest numbers, *e. g.*, on the head, face, and posterior aspect of the trunk; when small, they occupy a position immediately under the skin, or are closely connected with it; on the surface of the tumour, in its early stage, and corresponding with the impervious opening of the duct, a dark point may often be discovered—here a probe can be pushed into the cavity of the follicle, and the contents expressed; its interior is lined with a stratum of epithelium or thin cuticle, and the contents, however heterogeneous, be they limpid as water, viscid as honey, pap-like or fatty, pul-taceous or etheromatous, hairs or horns, whether they present under the microscope the appearance of epithelial scales, perfect or disintegrated, fatty particles, crystallized or amorphous or other elements, they are all the secreted products of the internal surface of the cyst, and correspond in every respect with the substances which a tegumentary glandular follicle is capable of furnishing. Facts like these establish beyond all doubt the opinion of Sir A. Cooper as to the follicular origin of encysted tumours, when subcutaneous or superficial. But the fact of such tumours being occasionally congenital—adherent to bone—occupying a position remote from the skin, and separated from it by a layer of muscle, has opposed itself to the unexceptional adoption of the doctrines enunciated in the *Surgical Essays*, and has led to the opinion that certain swellings of this class, although not far removed from the surface, are nevertheless adventitious growths—new formations—differing essentially from the subcutaneous variety. But it does not appear impossible that a body small at first, and connected with the skin, or even developed in its substance, should as it enlarged in size, come to occupy a deeper position, and be detached, in process of time, altogether from its original connections. Let us suppose a cyst, for example, to originate in the skin, covering the orbicularis palpebrarum; it enlarges in size and presses backwards, gradually the fibres of the muscle separate, and the tumour passes through them until the greater portion of its bulk lies upon a plane subjacent; but, the tumour being globular, the action of the muscle must now of necessity tend to place it in a still deeper position, and finally, by reapproximation of its fibres, to close over and separate it altogether from the cutaneous texture; imbedded at length in a loose areolar tissue, in close proximity with the periosteum underneath (which is fixed), and pressed upon in front by the muscular structure of the orbicularis (which is movable), it necessarily con-

tracts adhesion to the former. It is no objection to this explanation to say, that encysted tumours are often congenital—the same causes are in operation during intra-uterine life as exist after birth—the skin is formed at an early period of foetal development, and the sebiparous glandules are in a state of great perfection and activity at birth—their orifices are probably as liable to become obstructed during gestation as at any other period of existence, nay more so, from anatomical imperfection—if the anus may be congenitally imperforate why should a follicle not suffer from an analogous abnormality?

“In practice, encysted tumours, provided that they have attained a certain size, and have existed for a moderately long period, will always be found underlying the subcutaneous muscles, when these latter present themselves; at least my own experience does not furnish an example to the contrary; and, when a bone lies near, they are very prone to contract an adhesion to it, and indent its surface. No doubt the common wen, when it occupies the higher regions of the head, seldom attaches itself to the pericranium, a fact readily explained by the mobility of the scalp in which it is imbedded, and the intervention of the epicranial aponeurosis, the motions of which it is compelled to follow, but within and about the orbit and frontal region, where no such structure separates the tumour from the fibrous covering of the bone, the two will be found more or less intimately adherent.

“Although the majority of encysted tumours of the orbital region belong to the variety technically called *hygroma*—thin cysts with watery contents—it is not to be supposed that this locality is not obnoxious to other descriptions of these swellings. The second case detailed in this communication was an example of *etheroma*, and the sac possessed by no means an inconsiderable degree of strength and thickness. In cases Nos. 3 and 4 the integuments presented quite a natural appearance. In the third case the tumour was not adherent. In one of the patients, the swelling was more globular than oval; and in the girl Macklin the cyst had an irregular outline, and contained, not a fluid, but a suet-like substance, calcareous matter, and hairs. The conclusion, therefore, forced upon me is, that encysted tumours in the neighbourhood of the orbit do not possess *peculiarities*, although they frequently differ in many respects from congenerous swellings of the head and face.

“In all operations which interest surfaces so much exposed to view as the eyelids and parts adjacent, a point of no inconsiderable importance is the avoidance of unsightly scars and cicatrices; all incisions here should, if possible, be parallel to the natural folds and ridges of the skin. I have never found it necessary to deviate from this principle, nor have I ever met with a case requiring a crucial incision; certainly a vertical division of the lid should not be practised if at all avoidable.

“Although in removing the tumour great caution is necessary to avoid an opening, it may be advantageous, on certain occasions, after the cyst has been for the greater part isolated (as when the bone is deeply indented, or the tumour sinks far into the orbital cavity), to permit a portion of the contents to escape through a small puncture, the partial collapse of the sac will diminish its size, and thus permit a more distinct view of its deep-seated attachments. In the first case referred to it would have been perfectly impossible to effect the separation of the tumour from the roof of the orbit, were not this expedient adopted.

“After the operation sutures are indispensable; the edges of the wound, from want of due support, have a great tendency to become inverted; a few interrupted stitches made with a slender sewing-needle and fine waxed thread, with strips of court-plaster at intervals, supported by a well-adjusted compress, offer the best means of insuring an accurate union; as for metallic ligatures, I have almost renounced them, and I am not ashamed to confess the heresy.

“In cases where the total extirpation of the tumour is impossible, from its deep position or intimate connection with important organs, a secondary growth is very liable, in process of time, to make its appearance. The tumour is said to ‘grow again;’ but this language is inaccurate: no doubt a swelling does grow, but it is an *adventitious one*, engrafted upon the remnant of the former cyst, which, continuing to perform its function as a secreting surface, furnishes an unorganized product that acts as a foreign body, round which the cellular tissue



solidifies into a sac. It is thus relapses occur, and hence the advantage of being able to remove every portion of the tumour. When seated in the orbit, if deeply rooted, a cystic growth is one of very serious import, and may easily be confounded with other causes of exophthalmos;<sup>1</sup> nor is laying open the sac, and exciting a suppurative action unattended with danger. We must recollect that the periosteum of the orbit is continuous with the dura mater; and further, that a delicate sheath of the subarachnoid cellular tissue is continued forward around the bloodvessels and nerves that enter posteriorly; moreover, that the ophthalmic is in communication with the cerebral veins through the cavernous and other sinuses. Inflammation may readily extend by any of these routes from the orbital cavity to the brain and its membranes; nor is this occurrence by any means rare. Mackenzie, Wardrop, and other ophthalmic surgeons give cases. When I read of encysted tumours frequently operated upon, both in London and Dublin, before a radical cure could be effected, I may be permitted to congratulate myself at being more fortunate with my cases."

54. *Fibrous Tumours of the Iliac Fossa*.—In some clinical remarks on a case under his care, in the Hôpital des Cliniques, M. NÉLATON took occasion to describe a form of tumour, of which he has met with fifteen or twenty instances in the course of his practice. In structure, these tumours are composed of tissue resembling that which constitutes fibrous tumours of the uterus; their constant point of attachment or origin is the crest of the ilium, near the antero-superior spine of the bone. They are developed in the subperitoneal cellular tissue, behind the inguinal canal, between the iliac fascia and the peritoneum. M. Nélaton has found these tumours in females only; and all the patients in whom he has found them had borne children. They may be connected, to some extent, with the congestion which so frequently occurs at the menstrual periods and during pregnancy. The progress of these tumours is generally very slow; they take from four to ten years in gaining the size of two fists. The largest which M. Nélaton has seen, was of the size of a foetus at full term.

The fibrous tumours may be confounded with enchondromatous tumours, or with intestinal enlargements from impacted feces. But enchondroma is very hard knobbed; while the fibrous tumour is smooth, and is not attended by disorder of the intestines. Again, the fibrous tumours may be confounded with swellings, resulting from glandular degeneration or hypertrophy, with fibrous tumours of the uterus projecting into one of the iliac fossæ, or with tumours of syphilitic origin. Tumours of the latter kind, appearing among tertiary symptoms, have a certain amount of resemblance to the fibrous tumours of the iliac fossa. But the integument covering them is generally slightly changed in colour, and the subcutaneous tissue is found, on pressure for about a minute, to be a little œdematous; while nothing of the kind is observed in the fibrous tumours. Glandular swellings have not the firmness which characterizes the fibrous tumours; they are somewhat resistant to the touch, and sometimes manifest obscure fluctuation; and (a valuable point in diagnosis) they are scarcely ever solitary, while the fibrous tumours of the iliac fossa are always so. Moreover, glandular swellings are situated at the level of the inguino-crural fold, rarely in the iliac fossa; and they are movable in every direction. Fibrous tumours of the uterus are distinguished by being readily moved through the abdominal walls and the vagina; while the fibrous tumours on the ilium remain fixed when palpation is attempted.

With regard to treatment, M. Nélaton advises that, if the tumour be small, and do not cause much pain or inconvenience, the surgeon should not be in a hurry to interfere with it. But if it become painful and grow rapidly, or if the patient insist strongly on its removal, an operation must be performed. M.

<sup>1</sup> Several years ago a case of exophthalmos was admitted into the City of Dublin Hospital, under the care of Dr. Jacob. The eyeball was greatly protruded, the cornea dull, and the lids congested and of a purplish colour. It was decided to extirpate the globe, and afterwards to remove the contents of the orbit, if necessary. The first incision at the outer canthus opened a cyst, which immediately emptied itself, and permitted the eye to resume its usual position.



Nélaton has operated in two instances. In one case, M. Michou, under whose care the patient was, believed the disease to be encephaloid; M. Nélaton, however, recommended its removal, to which M. Michou consented. The peritoneum was strongly adherent to the tumour, and a small hole was torn in it, which, however, was closed by a portion of epiploon. The large vessels in the iliac region were exposed, but none were wounded. The pedicle of the tumour was cut from the crest of the ilium by scissors. M. Nélaton saw the patient lately (four or five years after the operation), and she remained perfectly well. The second case was more simple: in it a tumour, rather larger than the head of a foetus at full term, was removed through an incision of the same kind as that made for ligature of the external iliac artery. The patient recovered, and there has been no relapse.—*Brit. Med. Journ.*, March 29, 1862, from *Gaz. des Hôpitaux*, Feb. 18, 1862.

55. *Necrosis*.—Mr. THOS. WORMALD, Surgeon to St. Bartholomew's Hospital, presents (*Lancet*, Oct. 25, 1862) some interesting remarks on this subject.

"When a portion of bone dies," he observes, "the means by which nature gets rid of it has been a subject of controversy, and hitherto I think the truth has not appeared.

"The late Mr. Bransby Cooper, in his Lectures, has shown that where there is dead bone the 'necrotic' pus discharged contains much phosphate of lime; in ordinary pus there is scarcely a trace to be found.

"From observations and experiments I have long concluded that it must be through chemical agencies the disintegration of dead bone is accomplished.

"In necrosis pus is secreted abundantly, and it is alkaline. Presently acid is produced, which is at first weak, but it becomes stronger, and in some cases it may be seen exuding through minute apertures, which gradually enlarge until they are quite visible, and the surface of the dead bone becomes rough.

"In necrosis, by the use of common litmus paper an acid may be detected. Mr. Attfield, demonstrator of practical chemistry at St. Bartholomew's Hospital, found the acid taken from the surface of a dead bone to be phosphoric; this dissolves the bone, and the air-bubbles resulting may be seen on the surface of the pus.

"It may be further observed that in doubtful cases of necrosis the presence of phosphoric acid may prove a valuable diagnosis; and in cases where dead bone cannot be removed by operation Nature seems to indicate an appropriate remedy."

56. *Ovariectomy*.—[Dr. ROBERT LEE read a paper recently (Nov. 11, 1862) on this subject, before the Royal Medical and Chirurgical Society, which gave rise to an animated discussion. As the subject is one of great interest, and the debate shows the opinions of the leading surgeons of London in regard to the operation, we give it in full, though we must say that we do not see that much new light is shed upon the question. The discussion seems to us not to have been conducted in a true philosophical spirit, but the advocates for the operation and its opponents each have engaged in it as partisans; the former greatly overvaluing, and the latter underrating, its results. The great question—the means of diagnosing the cases suitable for an operation—has not been elucidated; and, until that is done, the operation must be regarded with some distrust. We learn from reliable authority, that one of our most experienced ovariectomists operated a few months since upon a lady whom he pronounced to have ovarian disease, and that the diagnosis was as clear and certain as in any case he had ever examined; yet, when the operation was performed, the disease proved to be a fibrous tumour of the uterus; and it was not until after the tumour had been excised and carefully examined that the mistake was discovered.]

Dr. LEE briefly states that his experience during the last eleven years, in regard to ovarian disease, convinces him that the published records of ovariectomy do not truthfully represent the statistics of the operation; successful cases having been made known, and the unsuccessful ones kept in the background. In none of the cases which have occurred under his own eye has he thought it

right to recommend the operation; and he considers the slow progress made by many of the cases to have been a justification of the course pursued by him.

The PRESIDENT said that, fifteen years ago, he saw Mr. Walne perform ovariectomy, in a woman 29 years of age. He made the large incision. The patient recovered, and was well now.

Dr. TYLER SMITH said that, for twenty years, he had, as Dr. Robert Lee still did, recommended that cases of ovarian dropsy should either be let alone, or be treated by palliative means, as tapping, etc. He then conscientiously believed that he was doing more good by these palliative measures than by ovariectomy. He saw, however, much misery and many miserable deaths from this disease. One case, especially, led him to consider ovariectomy in a more favourable light. Three years ago, he saw a case of Dr. Lee's which he considered favourable for ovariectomy. Dr. Lee thought him a madman for entertaining such an idea. The sudden death of this patient made him resolve, in the next favourable case, to try ovariectomy. He had since done the operation in fourteen cases. He had not rejected a single case. As regards diagnosis, of which the author had spoken in his paper, he would add, that in some of these cases Dr. Lee's diagnosis had been wrong. No one could be infallible in diagnosis, but, for the last three years, he had made but one mistake. With this exception, all the cases operated on were ovarian. In this case, which was one of cancerous disease of the mesentery, he had been unable to complete the operation, and the patient died in twenty-four hours. The patient was, at the time of the operation, then in danger of death. Of the fourteen cases, three had died, and—except one, done on Friday week, which was going on well—all the others were now well. So that of fourteen cases, three were dead, eleven cured, and there was one mistake. He would ask the author if he had had equally good results from his do-nothing practice. If so, his results were different to those he (Dr. Tyler Smith) had obtained before he adopted ovariectomy. He hoped that, some time, the whole statistics of ovariectomy would be published. He thought that the operation was safer, easier, and less dangerous than it was believed to be; and that the chief danger arose from medical men like Dr. Lee, whose recommendation induced the patient to put it off. He (Dr. Tyler Smith) thought, however, that we should not operate until the patient's health had begun to fail; but, in some cases, the patient insisted on the operation. We have to deal with minds as well as with bodies, and patients often will not endure a life of uncertainty. In conclusion, he would add that Dr. Lee had not brought forward anything against the operation, and that the hundreds of women saved by ovariectomy would have a stronger influence than his mere dictum. Two of the cases on which he had operated had been patients of Dr. Lee, who strenuously opposed the operation.

In reply to Dr. Beaman, Dr. TYLER SMITH said that the two patients of Dr. Lee, referred to in his concluding remarks, recovered.

Mr. SPENCER WELLS regretted that the substance of the documents accompanying Dr. Lee's paper had not been made known to the meeting, because the portion of the paper which had been read contained neither facts nor arguments, and all that any one could do, by way of reply, was to endeavour to prove that Dr. Lee's objections to ovariectomy should not lead to the condemnation of the operation. Three principal objections were stated by Dr. Lee. He said that women suffering from ovarian disease may live for a long time under palliative treatment; secondly, that it is often impossible to determine whether a tumour be really ovarian, and, if so, whether it can be removed; and, lastly, that ovariectomy is a much more dangerous operation than published statistics would lead us to believe. In reply to the first of these objections, it would be admitted by every one who had followed a case of ovarian disease to its natural or ordinary termination, that it was difficult to imagine a life of more hopeless misery; and that nothing could be more painful than to watch, day by day, a poor creature who, for some reason, was beyond the aid of surgery, sinking into her grave, worn out by protracted suffering. Yet this was the fate to which Dr. Lee would condemn hundreds of poor women who might be restored to perfect health by ovariectomy. Then as to the alleged difficulty of diagnosis, and the distressing mistakes which had been recorded, it must be acknowledged that these mistakes



were errors of a bygone age. It would be almost impossible for any one acquainted with the ordinary practice of percussion to repeat the error of the earliest Scotch ovariologist, and open the abdomen of a woman whose only tumour was formed by flatulent distension of the intestines. Nor could any one who had ever heard the placental murmur, or the sounds of the fetal heart, repeat mistakes which had been made in the later stages of pregnancy. In the earlier periods of pregnancy, doubts would sometimes arise; and in cases where ovarian disease complicated pregnancy, an occasional error might be unavoidable; but, in the great majority of cases, the diagnosis of ovarian disease might be brought as near to a positive certainty as could reasonably be hoped for in any department of surgery. From his (Mr. Wells's) own experience of forty-six cases in which he had performed ovariectomy, of six others in which he had commenced the operation, or had made an exploratory incision, and of very many in which he had either simply tapped, or had injected iodine, he should say that the diagnosis was generally easy; and though, in some rare cases, it was not so, yet no important mistake had been made in any one of these cases. This alone was enough to prove that any supposed difficulty in diagnosis could not be maintained as an objection to ovariectomy; and the only logical conclusion which could be drawn from the mistakes due to the gross ignorance or gross carelessness of some surgeons, or from the very rare errors which might be unavoidable to the most careful and the best instructed, was not the condemnation of a useful operation, but the endeavour so to improve our means of diagnosis as to make errors less and less excusable. In no other department of surgery would the possibility of an occasional mistake lead to the abandonment of all surgical interference, and it would be quite as logical to decry lithotomy because a neither careless nor incompetent surgeon might possibly cut into a bladder which did not contain a stone; or to condemn the ligature of arteries, because some one had tied an artery to cure an aneurism which did not exist; or to raise an outcry against the excision of joints, because a joint had been cut out which appeared to be so little diseased that a few weeks' rest would have saved the limb—as to denounce ovariectomy because some surgeons who had performed it had made mistakes. Then, as to the mortality—undoubtedly it was high; but it was high because we are often driven to operate in cases where the patient has been so broken down by the disease that the hope of success is very faint. If only favourable cases were operated on, a very large proportion would recover. We were now gaining the knowledge which enabled us to say to a patient, "The chances are ten to one, or five to one, or two to one, against you; or, the chances of success and failure are about equal; or, they are two to one, or five to one, or ten to one in your favour." Out of his (Mr. Wells's) own 46 cases, 17 had died and 29 had recovered, but many of them were very desperate cases; and he could say that he had scarcely ever lost a patient when he had felt very confident of success before the operation. Ten out of the last eleven cases had recovered. But it is said that the mortality is greater than the profession believe, because unsuccessful cases are concealed. This might be said of every other surgical operation. Men take pride and pleasure in their successes, and remember them, and make them known; while their reverses have often been so painful that they try to forget them. At any rate, they do not publish them, unless, for some special reason, they feel bound to do so. So in estimating the mortality of every operation—lithotomy, amputations, herniotomy, and so on—it is always necessary to make some allowance for probable error, due to the non-publication of unsuccessful cases; but, with regard to ovariectomy, so much attention had been directed towards it, that we probably had a larger proportion of cases published, compared to the number of operations performed, than could be collected respecting any other operation. He (Mr. Wells) *knew* that none of his own cases had been kept back; he fully believed that many other operators had been equally truthful; and he would join most warmly with Dr. Lee in denouncing the conduct of any man who could bring forward his successful cases and keep his fatal cases wholly or partly concealed. No punishment could be too severe for such flagrant dishonesty. But it was a libel on the profession to suppose that such an offence was common enough to throw discredit upon an operation which had done honour to English surgery. The Jury



on Surgical Instruments in the International Exhibition have published their report—and a most able report it is; just what one would expect from the eminent men who compose the jury—and among “the most remarkable additions to general surgery since 1851, which receive illustration in the present exhibition,” the jury thus speak of ovariectomy: “Described by De Haen as an operation of which it would not do to talk, lest some reckless surgeon should attempt its performance; and by Scanzoni as a proof of madness in the patient who should adopt, and of crime in the surgeon who should abet, such a mode of suicide; and, again, energetically denounced by Velpeau as an operation on no account to be admitted into French surgery—it is a source of legitimate satisfaction to English surgeons, from William Hunter downwards, that, thanks to their perception of the conditions necessary to success, and their courageous self-reliance in the face of difficulty, an operation which, till lately, was considered scarcely admissible, should now be practised with results at least as favourable as attend many other capital operations.” This “source of legitimate satisfaction to English surgeons,” Dr. Lee would deny them; but it was to be hoped that the Society, so far from aiding him, would, on the contrary, influence professional opinion in favour of an operation which should rank among the greatest benefits conferred by surgery upon mankind.

Dr. SAVAGE said that, as senior physician of the Samaritan Hospital, he had seen nearly all the cases operated upon, in that institution, by Mr. Spencer Wells, and, like Dr. Lee, had also got together a list of cases of ovariectomy; but his collection differed from Dr. Lee's in one important point. Dr. Lee never would see the operation done. He (Dr. Savage) had asked him to come and see a case, but Dr. Lee said he would rather not. This reminded him of an anatomist who denied the existence of the curling arteries of the uterus. Many years ago, when Dr. Savage was giving some attention to this point, he one day asked this gentleman to come and see these arteries in a uterine perforation, but he said, “No; he had said there were no such arteries, and he did not want to see them.” Dr. Lee stood precisely in this same position. He had expressed strong opinions against ovariectomy, and he did “not want” to see anything which could alter his opinions. So his list of cases of ovariectomy, though large, was perhaps less reliable than his (Dr. Savage's), though only numbering between fifty and sixty, because he (Dr. Savage) had taken care to become intimately acquainted with each case before the operation, during the operation, and after the operation. Thus, his personal information being more precise, might, perhaps, be accepted as making up for deficiency in numbers so far as to justify his offering a few remarks on the present question. When Mr. Spencer Wells became his colleague at the Samaritan Hospital, the authorities there, himself included, on the whole, were unfavourable to ovariectomy; but Mr. Wells's success was decisive. Like Dr. Smith, he (Dr. Savage) could not help becoming a convert, but he could not agree in considering the extirpation of a diseased ovary a simple operation; quite the contrary. It seemed to him there was no operation which could present a greater source of embarrassment, or required more presence of mind, readiness in resource, and the other best qualities of the surgeon. The reasons just advanced by Dr. Smith and Mr. Spencer Wells, in favour of ovariectomy, must be concurred in sooner or later, especially by those who had been in the melancholy situation of witnessing the progress and termination even of ordinary forms of ovarian disease. It had been noticed that the operation had been followed by an inequality of success, in regard to persons and places, which had excited a doubt, not only whether it could ever be brought under definite surgical rules, but whether individual statements of successful cases could be relied on. From his own observation, he could not help thinking that very much depended, not so much on the skill, as on the experience, of the operator. For instance, what course would an inexperienced operator adopt in a case where, the tumour having been freed from the abdominal cavity in the most skilful manner, everything promising its speedy and successful separation, he could not find a pedicle—no place to apply any form of ligature? Would any one, without some experience in such operations, be ready with a suitable expedient for such a complication? Yet he had lately been present when this occurred to Mr. Wells, and the measures resorted to were followed by one of the best reco-

varies. One of Dr. Lee's chief objections turned on the presumed insuperable difficulty of making out satisfactorily, in any given case, whether or not the tumour was a pregnant uterus, or whether pregnancy coexisted. This difficulty had not led to any mistake in any of the cases he had seen, nor could he imagine how it need be made. Fluctuation in many compound cysts was avowedly very obscure, and the abdomen, to the sight and touch, often closely resembled its appearance in pregnancy, but the usual modes of investigation were quite sufficient to make out a correct diagnosis in every case. He had come to this meeting of the Society in the anticipation of hearing sundry other points of difficulty connected with ovarian diagnosis discussed; but as what had transpired of Dr. Lee's communication offered no precise fact of any kind whatever, there was nothing to deal with. Dr. Lee had included in his list all the cases of ovariectomy he could get at. Well, then, the case he was about to allude to must be one of them, and, therefore, before the Society, and he thought it would be satisfactory to the profession if they were informed what were the precise points which led to the difficulty of diagnosis in a case which had occurred in the institution with which Dr. Lee was connected as physician accoucheur. The leading particulars of the case had been published, but he (Dr. Savage) thought Dr. Lee ought to explain, for their future guidance, how and why the difficulty had arisen.

Dr. LEE rose and said it was true that he had never performed the operation of ovariectomy on the living body, that he had never sanctioned its performance, and that he had never seen it performed by others. In the year 1840, he had been invited by the late Mr. B. Phillips to be present at the St. Marylebone Infirmary to see him operate. He (Dr. Lee) consented to be present, but, being professionally engaged, did not arrive at the infirmary till the operation had been completed. The patient was 21 years of age, in good general health. An incision of two inches and a half was made through the abdominal parietes; the cyst was seized with the vulsellum; 330 ounces of fluid evacuated; the opening enlarged; the cyst drawn out; the root tied and excised, and the sac removed without difficulty. Severe pain followed, with vomiting. He saw the patient about half an hour afterwards, with rapid, feeble pulse, and cold extremities. He was present at the examination of the body, when the appearances of recent inflammation were observed within the pelvis, with a small quantity of extravasated blood. He had seen the patient a few days before in excellent general health, and if her life had not thus been suddenly and violently destroyed, she might have lived for years. Mr. B. Phillips never again performed the operation of ovariectomy. He (Dr. Lee) was now told that ovariectomy was a simple operation, and the reports published of successful cases would lead to the inference that it was attended with comparatively little danger. No operation, he was convinced, could be performed on the human body so dangerous, except the Cæsarean section. Indeed, the Cæsarean section and ovariectomy resembled one another in several striking respects. In both an incision must be made through the abdominal parietes, the peritoneal cavity laid open, and the bowels exposed. "I am acquainted," says a statistical writer in the thirty-fourth volume of the *Medico-Chirurgical Transactions*, "with 409 authentic cases of the Cæsarean section, 341 of which are collected in Kayser's valuable essay, 'De Eventu Sectionis Cæsareæ.' In 251 of these cases the mother died; in 156 she survived. There can, however, be no doubt but that these figures convey a very exaggerated impression as to the proportion of recoveries, and that the unfavourable estimate of English authors is nearer the truth. Both Kayser and Naëgelé regard the results given by the published cases as *unfair*; and the former mentions the fact, which of itself affords strong evidence on this point, that while the total maternal mortality amongst the cases which he had collected was 63 per cent., the mortality of cases occurring in lying-in hospitals, in which institutions failures must of necessity be reported as well as successes, amounted to 79 per cent." The results here stated were admitted to be unfair, he would say wholly destitute of truth, and utterly unworthy of credit. Did any one person there present believe that of these 409 cases the mortality was not greater than 63 per cent.? It was known that numerous fatal cases of Cæsarean section had occurred on the continent, of which no report had ever been permitted to see the light. This applied forcibly to the statistics of ovariectomy, which he had



been told were the sole foundation upon which all their conclusions respecting the propriety of removing ovarian cysts and tumours must rest. If all the fatal cases of ovariectomy had been published, there might have been some appearance of force in this; at least, the degree of danger would have been indicated. But this had not been the course followed in this country since the operation came to be performed. It was notorious that numerous fatal cases of ovariectomy had occurred of which no report had ever been published, and all attempts to remove the veil which concealed them had been fruitless. "You have related, sir, to the Society (addressing the president) a successful case of ovariectomy performed many years ago by Mr. Walne. Can you inform the Society of the number of cases in which he performed the operation with disastrous results, of which no account was ever published?" When preparing his (Dr. Lee's) analysis of 162 cases which had occurred in Great Britain, for this Society, he wrote to Mr. Walne, and requested him, on the grounds of science and humanity, to communicate a full report of all his successful and all his fatal cases. With this request Mr. Walne refused to comply in the most peremptory manner, and no accurate report had ever been published of the results of his practice. It was long since Mr. Walne had been heard of as an ovariectomist; but the reports of success in his early career were quite as flattering as those marvellous results which had been related to the Society that evening. Mr. Walne was not the only ovariectomist to whom he (Dr. Lee) applied for information on the occasion without success. Another, whose fame as a successful ovariectomist had not been surpassed in this country, made a return to him which was not correct, and which he was compelled to reject as untruthful. Of this ovariectomist little had been heard of late years, and he (Dr. Lee) believed he had abandoned the operation altogether. The postscript of Dr. Lee's paper contained an account of all the cases operated upon by Mr. Lane, Dr. Clay, Mr. Spencer Wells, and others, and the history of some fatal unpublished cases. The Council of the Society had decided that these should not be read. He had requested the last case in his postscript to be read, but that request had not been complied with. It was a case related in a letter to Dr. Noble. The operation was performed in 1855, with the sanction of Mr. Harrison's colleagues, and in the presence of Dr. Noble and several other medical men and Dr. Clay. "I removed the tumour," says Mr. Harrison, "and the first time I suspected it to be uterine was on cutting through the pedicle." The patient had died in eight hours. He (Dr. Lee) was uncertain if this case was published. Another letter in the postscript contained an account of three fatal cases. One of these had been published as a fortunate case. The histories of many others had been communicated to him, not referred to in the postscript. He had himself seen a considerable number of cases where the operation was performed, contrary to his advice, with rapidly fatal results, of which no reports had been published by which the cases could be recognized. He passed the house of one of those patients that afternoon. There was hope in this case that, with ordinary treatment, this patient might have lived for years. The operation was very lately performed, with rapidly fatal results, upon a lady he had seen in the country on the sea-coast. By no efforts had he succeeded in bringing to light the details of that case. If the operation was so simple and so successful, why were these cases concealed from the public and the profession. He (Dr. Lee) saw a case near Brixton some time ago, since the publication of his "Analysis." There was a great mass of ovarian cysts and tumours firmly adhering. He never saw a more unfavourable case for an operation; but a most marvellously successful ovariectomist was called to see the patient, and he pronounced it a favourable case. He said that he (Dr. Lee) was wholly ignorant of the subject. This ovariectomist made an incision from stern to stern, not an exploratory incision, but nothing could be removed after repeated attempts, and the patient was soon in her grave. Dr. Lee wrote to the ordinary medical attendant some weeks after, inquiring what had become of her. He received no reply of any kind. He wrote a second time, without success. Many months after, Dr. Lee accidentally met a clergyman at Clapham, who informed him that the operation had been performed with speedily fatal results, and that he had buried her. It would be useless to multiply such cases; and yet he was told that the statistics of ovariectomy were to form the ground-



work of all decisions respecting ovariectomy, and that they were worthy of trust. An attempt had been made to institute a comparison between the results of ovariectomy and great surgical operations. A chronic ovarian disease, after lasting four years, and not threatening life, bore no resemblance to a case of strangulated hernia, an aneurism ready to burst, or a shattered limb with hemorrhage from the large arteries. Ovariectomy could not be compared to any of the great operations of surgery. In the cases of ovariectomy called unsuccessful, the patients had been suddenly deprived of life by violence without any necessity. But it was not from some occasional cases of recovery from the operation, such as those related that evening, that a correct opinion of ovariectomy could be formed. All the facts must be taken into account, otherwise no sound judgment could be formed of the difficulty of the diagnosis, and the danger of the operation. It appeared, from the analysis of 162 cases, that a successful instance occurred in America, and was published in the *Edinburgh Medical and Surgical Journal* in 1822. He had thought that this was the first case; but it was now stated that the operation had been performed by Dr. M'Dougal before. This was a matter of no importance. It could not be denied that the publication of a successful case took place in 1822; and he had supposed Mr. Lizars, in consequence of this case, had recourse to operation. In Mr. Lizars's first case, there was no ovarian disease to be removed. In the second, the disease was removed, but the other ovary was diseased and could not be removed. This patient was afterwards seen by some surgeons in London. He believed Mr. Lawrence saw her, with a great cicatrix of the abdomen, and a large mass of disease within. The third patient operated upon by Mr. Lizars died. In the fourth case, there was no ovarian disease to be removed. About 1829, a case similar to this was seen in Guy's Hospital by Dr. Gooch. In 1826, Dr. Granville made an incision of nine inches long through the abdominal parietes, and a large ovarian tumour was brought into view, which had such extensive adhesions that it could not be removed. In 1829, Dr. Granville operated again, and removed a tumour weighing nine pounds, which was supposed to be ovarian, but it was a large fibrous tumour of the uterus. Dr. Lee examined this tumour in the recent state, and ascertained that it had adhered to the fundus uteri by a thick peduncle, around which a ligature had been applied, and the root cut across. A portion of small intestine which had come in contact with the incised root became inflamed and gangrenous, and the patient soon perished miserably. The preparation of the parts was long in the possession of Mr. North. Dr. Granville was about to operate upon another patient, but Mr. C. Clarke recommended the patient not to submit to the operation, and she lived some years after, and died a natural death at Barnes. Dr. Scott examined the body, and presented the tumour to Dr. Lee, which was the uterus, with a fibrous tumour imbedded in its walls of the size of three human heads; it was in Dr. Lee's collection at St. George's Hospital. Dr. Granville had far greater experience in the practice of midwifery than any who had that evening spoken. In 1835, Mr. Jeaffreson performed the operation, and the patient recovered. From that time to the present, the operation had occasionally been performed with success, but as often, he (Dr. Lee) believed, with fatal results, if the whole truth were revealed. About the same time, Mr. King attempted to perform the operation, but the ovarian disease could not be removed, and the patient died. In 1834 he repeated the operation with success, and again in 1836. Then followed three successful cases and one fatal. Then followed six fatal cases running, in which the operation was performed by Messrs. Hargraves, B. Phillips, Aston Key, B. Cooper, and Mr. Greenhow. In looking over one column of his "Analysis," he (Dr. Lee) could see "Died—died—died—died—died—died" in a few days—he might say killed. All these operations were performed by distinguished surgeons, and none of them repeated the operation. In fact, the operation required undoubtedly great hardihood. So far, it was an operation such as had been described. He would refer those who wished to know all the facts to the remainder of the "Analysis," by which it appeared that, of 162 authentic cases in which the operation had been undertaken, in 60 the ovarian disease could not be removed, 19 of which proved fatal; of the remaining 102 cases in which the operation was completed, 42 terminated fatally. From these facts, he concluded

that ovariectomy and the Cæsarean section were the two most dangerous operations which could be performed on the human body. The postscript of his (Dr. Lee's) paper, which the council had refused to read, contained reports of all the cases, successful and fatal, which had come under the care of Mr. Spencer Wells, and he believed that that gentleman had concealed no fatal case. One of the successful cases, he (Dr. Lee) had seen in Burton ward, St. George's Hospital, and he thought the case as favourable for the operation as any he had ever seen. He summoned a consultation of the surgeons; but they declined to operate unless he sanctioned the operation, which he could not do, knowing that, until the abdomen was laid open, it was impossible to tell whether the cyst could be removed or not, and knowing also that the patient's life would, under the most favourable circumstances, be exposed to the utmost danger. She went to the Samaritan Hospital, and was operated upon by Mr. Spencer Wells with success; but she had a narrow escape with her life, and she told him (Dr. Lee) that she considered herself on the brink of the grave during several days. But the perusal of the successful cases of Mr. Spencer Wells had no doubt led to most fatal results. In reading some of these cases, a lady in Ireland, who had ovarian disease, resolved to have it extirpated, being convinced that ovariectomy was not attended with much danger. A pecuniary negotiation took place between her and Mr. Wells, but it came to nothing; and another ovariectomist went to Ireland, and performed the operation. He (Dr. Lee) had been informed that he represented the case as not unfavourable, and that his fee was to be 300 guineas, and 100 guineas every day he remained with the patient after the operation. Bargains of this description, he (Dr. Lee) had been informed, were not uncommon. The operation was easily performed, and the operator ran round the table, kicking up his heels in triumph; but these feelings of delight were of short duration, for the patient soon began to sink, and died in eighteen hours. Had Mr. Spencer Wells ever read any report of this case? It was impossible to deny that the question now under discussion was a money question, and not one of science and humanity. Mr. Spencer Wells had reduced all his cases under three heads. One of these comprehended all the cases in which what had been called exploratory incisions had been made, and these were spoken of as if they were things of no very serious importance, though they had sometimes caused death. "You would not, I am convinced," concluded Dr. Lee, "view them in this light if incisions were made through your abdominal parietes, and the fingers of an ovariectomist introduced amongst your bowels to hunt for adhesions. Mr. Liston had a great horror of such exploratory incisions and of all ovariectomists. He called them 'belly rippers,' with a B before and a B after. The meaning of these two B's I must not state plainly to the Society."—*Med. Times and Gaz.*, Nov. 22, 1862.

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57. *Ovariectomy in Ireland.*—Dr. KIDD exhibited to the Dublin Pathological Society (April 12, 1862) an ovarian cyst which he had removed and gave a history of the case, which terminated fatally. He stated that this was only the third time the operation had ever been performed in Ireland. The first was in a case of his in which Dr. Clay of Manchester, had operated, in which there were no adhesions, and the patient died within 23 hours. The second was Dr. Gordon's case, in which there were adhesions to a slight extent, and which was also fatal.—*Dublin Quarterly Journ. Med. Sci.*, Nov. 1862.

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58. *Ovarian Dropsy cured by Iodine Injections.*—The following communication from Dr. BULLEN, of Cork, was read to the Edinburgh Obstetrical Society:—

"Last year, in a case of ovarian dropsy, after drawing off several gallons of glairy fluid, I threw two drachms of compound tincture of iodine in an ounce of water into the ovarian sac. The woman complained of great heat in the part, but the symptoms were not severe. She left the Mercy Hospital much relieved, with a hard tumour in the iliac fossa. At the end of six months this woman died of phthisis, and on dissection the ovary was found converted into a solid tubercular tumour about the size of a goose's egg. There was not more than half an ounce of muco-purulent fluid in the sac."

Dr. A. Simpson stated that he had, a few days ago, assisted his uncle in tap-



ping a woman for ovarian dropsy, and, before injecting iodine, he washed the sac out twice with about twelve ounces of tepid water, for the purpose of removing the albuminous fluid which remained adherent to the walls and would have prevented the iodine from acting so actively as it would otherwise do.

Dr. Andrew Inglis alluded to a woman at present in the Royal Infirmary affected with peritonitis, whom Dr. Simpson had tapped and injected some years ago for ovarian dropsy, and in whom the disease never recurred. The only vestige remaining was a small, hard tumour, the size of an orange, on the lower part of the abdomen on the left side.—*Edinburgh Med. Journal*, Oct. 1862.

## OPHTHALMOLOGY.

59. *Inferior Section of Cornea for Extraction of Cataract.*—MR. ERNEST HART considers the inferior section of the cornea preferable to the superior, in the operation of extraction of cataract. My own experience, he says (*Lancet*, Oct. 18, 1862), and the observation of a long series of cases in the practice of my friend, Mr. White Cooper, prompt me to speak much more favourably of the inferior section than do some of our classical writers on ophthalmic surgery. From the results of a large number of cases of extraction, in rather more than half of which I have operated by the inferior section, I have great reason to be satisfied with that method. In a number of other cases which I have had opportunities of observing, the result has been as good.

It has been objected to the inferior section that the edge of the lower lid is likely to become engaged in the wound, and so to retard union; and that by its position, being bathed in the tears of the inferior cul-de-sac of the mucous membrane, the healing of the cicatrix must suffer from that contact. I believe both these objections to be partly fanciful, and that they are not fully borne out in practice. I have never seen more rapid union than in the cases of inferior section, and the excellence of the ultimate result is greatly aided by the more favourable conditions which it offers for executing the operation to perfection. In employing the superior section, there are difficulties inherent to that method. These occur especially in the second and third stages of the operation. After the section has been made and the eye released, the ball turns upward under the lid so as to bury the incision, and the introduction of the cystitome, the expulsion of the lens, and the perfect clearing of the pupil are all infinitely more difficult than in the lower section. Practice teaches how to overcome these difficulties; but I am persuaded that the greater facility with which the pupil may be cleared and the parts adjusted has the effect of producing more perfect results from that operation. The accidents of operation—and in these I include wounding the iris, effusion of blood into the anterior chamber, difficulty in extracting the crystalline lens, incomplete incision of the capsule, declension of the lens into the vitreous humour—may be almost wholly excluded from operation by the inferior section. By my own experience I am led to similar conclusions in respect to prolapse of the iris and synechia—two of the most troublesome accidents so far as the after-consequences are concerned. In one or two patients I have operated with the same degree of care by the inferior section on the one eye and by the superior section on the other, and the result has confirmed a preference for the former method. Thus, in Catharine B., who was lately under operation at the West London Hospital, the result on the left eye (inferior keratotomy) was perfect; in the right (superior keratotomy) the iris is adherent to the corneal cicatrix. The same has happened in two other of my cases lately. I know no more beautiful, simple, and successful operation than extraction by the lower flap.

60. *Some Affections of Vision Apparently of Syphilitic Origin.*—DR. R. HIBBERT TAYLOR, Senior Surgeon to the Liverpool Eye and Ear Infirmary, has published (*British Med. Jour.*, March 29, 1862) some interesting observations on these affections.



"Any one who has seen much of diseases of the eye," he remarks, "especially as they present themselves in public institutions for that class of maladies, must have had his attention drawn occasionally to cases apparently of syphilitic origin, in which the failure of vision could not be accounted for by any appreciable change in the external structures of the eyeball. There is probably no redness of the superficial tissue present, nor any trace of iritis, as usually manifested by thickening and loss of brilliancy of the iris, and adhesion of its pupillary border to the capsule of the lens.

"On inquiring into the history of these cases it will be found that syphilitic affections, both primary and secondary, have been observed, and generally at periods rather remote from the occurrence of the symptoms now complained of. Among the secondary symptoms previously noted iritis may or may not have occurred; and if it has been present, generally all traces of its existence have disappeared.

"My attention was first awakened with regard to such cases many years ago, and I confess that for a long period they seemed very puzzling. We, and I speak of those of my own standing in age, have been so accustomed, from the influence of early professional tuition, and the habits of observation founded upon it, to regard syphilitic affections of the eye as limited almost exclusively to one disease, iritis, that it was with difficulty one could shake off this inherited belief, and rise to the wider, and, I believe, juster view of the subject which these cases suggest. For myself, I must admit that it was only step by step that I was irresistibly led to the conclusion that the influence of the syphilitic poison upon the tissues of the eye possessed a more extended range than had hitherto been assigned to it, and that the deeper tissues of the choroid, retina, and vitreous humor, were probably liable to have their structures deranged and their functions impaired in like manner with those more open to inspection.

"The use of the ophthalmoscope, which has already rendered such invaluable service in investigating the pathology of the deep structures of the eyeball, has clearly shown that these surmises were well founded, and that the failure of vision in these instances was amply accounted for by the structural changes which we have thus been enabled to detect.

"In a recent number of the *Medical Times and Gazette* seven cases are narrated, occurring in the practice of the Royal London Ophthalmic Hospital, which illustrate this subject on various points, and are worthy of the attention of those who feel an interest in it. In one case there was dimness of vision of one eye, following primary and secondary syphilitic symptoms which had occurred some months previously, but had then nearly disappeared, and there was no iritis. Examination with the ophthalmoscope revealed a congested and hazy condition of the retina, with the appearance of a thin gauze before it. The patient was treated with mercurials till the mouth was slightly affected, and afterwards a milder action was kept up with some intermissions during several months. At the expiration of this period the sight was nearly perfectly restored in the affected eye, and the morbid ophthalmoscopic appearances had vanished. In another instance the symptoms in the eye first showed themselves six months after the primary infection; and at the period of admission to the hospital a well-marked syphilitic rash existed upon the shoulders. Both eyes were equally affected in this case, and the symptoms complained of were dim muscæ, and the appearance of clouds of smoke. The patient was unable to read the largest type, or tell the hour by the clock. The attack commenced rather suddenly, first in one eye, and shortly afterwards in the other. The ophthalmoscope showed a turbid vitreous humour in each eye, with numerous white silvery films floating in its structure. The patient, a married woman, was nursing an infant; but, except being somewhat reduced by lactation, was in fair health. Mercury was prescribed, and the baby to be weaned; but unfortunately no record of the result is given.

"In another case, the minute details of which I need not repeat, the affection of the eyes followed the primary syphilitic disease after an interval of several years, and examination with the ophthalmoscope disclosed extensive structural changes in the choroid, optic disk, and retinal vessel, so great as to preclude any hope of the restoration of sight.

"I need not further multiply examples from this source, as they all tend, more or less, to show the occurrence of serious structural changes in the deep tissues of the eye, materially affecting vision, and taking place at periods more or less remote from the infection of primary syphilis. The point of most interest, regarding such cases, is this, that, in general, they do not present any obvious external appearance of their syphilitic origin, and unless the history of each has been minutely inquired into, its real nature would be misunderstood, and the treatment most likely to be effectual would not be adopted. Nor without the aid of the ophthalmoscope could we detect those changes in the deep tissues which give no outward visible sign of their existence, and which yet are sometimes so extensive and important as to be wholly irreparable.

"The following case, which I recently met with in private, illustrates several of the points which appear to be characteristic of this form of secondary disease, and affords, in addition, a good example of the value of the ophthalmoscope, as without its aid it would have been impossible to refer the failure of vision to its true cause, in partial disorganization of the deep tissues of the eyeball.

"Mr. W., a tall, stout, soldier-looking man, connected with the land-transport corps in India, and twenty-two years resident in that country, consulted me about a month ago, complaining of weakness and wateriness of both eyes, with defective vision, especially in the right. He stated that about five years ago, while in a hot district of India, he first observed an appearance of a glare, like stars, before the right eye; and objects looked at seemed to be more distant than they really were. Vision with this eye was also indistinct; but he was able to distinguish one person from another by their features, and with some pain and difficulty could make out the letters of a large type. Since then, vision has still further declined, and the eye has become weak and watery. During the last eighteen months, the left eye has also become weak and watery; but the sight is very little affected as yet. Rather more than five years ago, or about two months previously to the affection of his sight, he had primary venereal sores, followed, in about a fortnight, by an eruption over the arms and chest, which, however, disappeared in a few days, and was succeeded by scaliness of the palms of the hands and soles of the feet, attended with heat and dryness, which continued, more or less, till nine months ago. He had also pains of the bones, coming on six months after the primary disease, and lasting about a month. He says that he never took mercury so as to affect the mouth, but treated himself with one-eighth of a grain of the bichloride once daily during several months. He also applied black wash to the chancre, which healed in about a week. He has never had inflammation of the external tissues of the eyeballs, and there are no traces of iritis visible. He states that he has used his eyes much in writing, sometimes till late in the night. There was slight conjunctivitis observable in the right eye when I first saw him, and the pupil in each eye was of medium size, tolerably regular, and sluggish in its movements.

"Examined with the ophthalmoscope, the optic disk in the right eye was indistinctly seen, as if through a veil or gauze, and was perhaps smaller in dimensions than usual. On the patient rolling the globe directly upwards, the lower part of the retina was seen to be thickly studded with black spots, varying in size and figure, imparting to the membrane the appearance of a leopard's skin. These appearances alone, independently of the history of the case, would have sufficed to indicate the syphilitic origin of the disease, inasmuch as they seem to be, in a great measure, pathognomonic of such affections of the eye.

"With regard to *treatment*, mercury is certainly to be relied upon as the most effective remedy, especially when the structural changes in the deep tissues are extensive and material, as in the instance last cited; and the greatest amount of good which it is capable of doing will probably be obtained by exhibiting it in small and frequently repeated doses, affecting the gums slightly, and maintaining the action during several weeks. In milder cases, where the ophthalmoscopic appearances do not show more than a gauzy haziness of the retina, and indistinctness of the optic disk, the iodide of potassium has been given with good results. In the case from India, above mentioned, I prescribed calomel and opium in small doses; but, as the patient lives at a distance, and has not yet reported his condition, I cannot speak as to the result.



"In addition to the above remarks, I may add that, during a recent visit to London, I had an opportunity of conversing on this subject with several of the surgeons connected with the ophthalmic institutions in the city, as well as with others of much experience in diseases of the eye, and I found that their observations in this class of diseases tallied very nearly with my own. In the wide field which the metropolitan ophthalmic institutions present these diseases are of frequent occurrence, and often appear in very aggravated forms; but even in our more limited provincial spheres, I am inclined to think that they are oftener to be met with than we perhaps suppose, and that they have only hitherto escaped our notice, either from our attention not having been directed to the subject, or because, although we may have observed the consequences of the disease in the production of defective vision, it has not been referred to its true cause, the influence of the syphilitic poison."

61. *Ophthalmic Ointments*.—Mr. W. WHITE COOPER states (*Lancet*, June 28, 1862) that for some time past his attention has been directed to obtaining a basis for ophthalmic ointments which shall neither become rancid nor irritating to the eye. The material which possesses these qualifications in the highest degree appears to be the butter obtained from the *Theobroma cocoa nut*, from which chocolate is made. This nut contains about four-tenths of its weight of a fixed oil of the consistence of firm tallow; having a rather agreeable and characteristic smell, and little, if any, tendency to become rancid. The butter is obtained by roasting the nuts, bruising them, and then submitting them to strong pressure between heated metallic plates. Though very firm, it has the property of becoming fluid at a low temperature, and when applied to the skin feels cool and pleasant. I have reason to believe that the concrete oil of the cocoa nut (*Cocos nucifera*) is sometimes mistaken for the butter of the *Theobroma*, but it is deficient in the characteristic properties mentioned, being soft, often rancid, and used chiefly for making candles and soap.

I have had the cacao butter mixed with the nitric-oxide of mercury, then moulded into pencils, whereby it can be applied to the edge of the eyelid, or any other point, with great facility. The firmness of the butter renders it an admirable material for suppositories, and its cooling character adds to its value as an application to hæmorrhoids, &c. Should objection be made to its firmness as an ophthalmic preparation, it can be mixed with olive oil, the best proportion being two parts of the cacao butter to three of oil; I mention this, as patients occasionally find fault with the stiffness of the pure butter.

Benzoated lard ranks next to cacao butter, and the fat obtained from the omentum of the calf is a sweet and pure material, though it does not keep so long as either of the other preparations.

62. *Opium in Conjunctivitis*.—Mr. W. WHITE COOPER remarks (*Lancet*, June 28) that "a weak solution of the extract of opium—one grain to the ounce—has a most beneficial influence on many cases of conjunctivitis. I have seen instances in which the inflammation yielded to this, having resisted every other application. The wine of opium dropped into the eye is a well-known remedy, but very painful, the pain being caused by the spirit. Mr. Squire informs me that the new Pharmacopœia will contain a fluid extract of opium, in which the proportion of spirit is only two ounces to the pint. This will probably supersede the vinum opii, as I believe the benefit is mainly due to the opium, and that the aromatics and the strong wine can be alike dispensed with.

Cases are occasionally met with in which opium excites rather than allays irritation. I prescribed a collyrium of six grains of extract of opium in six ounces of rose-water for a lady who was suffering from slight conjunctivitis. It greatly aggravated the inflammation, and the patient stated that, with her, opium invariably acted as a powerful irritant.

A popular collyrium is a combination of diluted Goulard water with vinum opii; this is open to the grave objection that an insoluble meconate of lead is formed, which may become impacted in the cornea, leaving an indelible mark if there be abrasion or ulceration present. Of this I have seen many examples. The left eye of an artist of my acquaintance has been rendered useless from



childhood by a patch of such deposit in the centre of the cornea. As a rule, it is safest not to employ lead, or other turbid lotions, in strumous or exanthematous affections of the eye, these being frequently attended with ulceration of the cornea. Lotions of zinc and alum, and the solutions of vegetable extracts, as opium, poppy, or belladonna, should be filtered, and if the latter are intended to be kept, even for a few days, a little glycerine should be added to prevent the formation of acetic acid by the change the vegetable matter undergoes, which also gives rise to mouldiness.

### MIDWIFERY.

63. *Painless Parturition*.—Dr. GEORGE SMITH, of Madras, communicated to the Obstetrical Society of Edinburgh the following example of this:—

“Some years ago I was engaged to attend an English lady during her approaching confinement, and was startled one day by a hasty summons, coupled with the information that the child had been suddenly born without warning of any kind. On reaching my patient’s residence, I found that the child had been born about ten minutes, and that it was still lying, with the umbilical cord uncut, close to the mother’s body. The native female servant, at the lady’s order, had left the child untouched, merely raising the bedclothes a little to permit the free access of air for the purpose of respiration.

“On inquiry, the lady informed me that she had been for some time expecting her confinement daily; that the previous night she had felt as usual; but that she had had occasion to rise frequently to attend upon her sick child, and that she had got up as usual about half-past five A. M., feeling well, and having no indication of the near approach of labour. Further, that during the forenoon she had walked down a long flight of steps, and across a gravelled walk to a smaller house within the enclosure of her own grounds, where, feeling a little tired, she had lain down upon a bed—that soon after she experienced slight discomfort, likened by her to ill-defined uneasiness of the abdomen under the operation of a mild laxative, followed by an impression that some solid warm body was lying in contact with her person—that she directed her servant to look below the bedclothes, and that the attendant on doing so, found to her surprise the child entirely extruded.

“My patient assured me repeatedly and earnestly that she was quite unconscious of the whole parturient process culminating in the birth of the child, and expressed herself both surprised and alarmed at a delivery so painless and instantaneous. As she was daily, nay, hourly, expecting her delivery, it is but reasonable to suppose that she had been for some time acutely alive to the earliest intimations of commencing parturition, and it is surely remarkable that nothing occurred from which she could have suspected that the act had actually commenced. My patient had no object in deceiving me, and I am quite satisfied of the entire truthfulness of her often—to me—repeated statement.

“This case has a medico-legal significance, as well as a practical. If a female awake, in perfect health, in the exercise of sound reason, and hourly expecting her confinement, having no object for its concealment, but many reasons for its occurrence, being welcomed by her friends, can be the subject of painless, unconscious labour, preceded by no appreciable premonitory symptoms, and making itself known only when the extrusion of the child has been completed in the way described, how much more may we be inclined to yield belief to cases in which it has been averred that delivery has taken place during sleep, without waking the mother, and to others, in which it has been maintained that owing to the painlessness of the parturient process, the child’s life has been lost by a fall on the ground, or by being engulfed in a latrine? The child was a female, small, but not much undersized. The mother’s first labour—this was the second—was a normal one, accompanied by the usual signs, and extending over six hours in its duration.”

Dr. Pattison stated that he had once attended a primiparous patient who suffered no pain at all during labour. He had not been summoned to the case, but happened to call at the time; the child was born quite easily, the patient only experiencing a feeling of pressure.

Dr. Wilson had once been called to see a woman who had been delivered without any pain, whilst she was walking about in the house; and he found the child lying on the floor with the umbilical cord torn across.

Dr. Cochrane thought that such a case as that related by Dr. Smith might more readily occur in a warm country with a relaxing climate. But he had himself seen a woman who had just been delivered of a child almost unconsciously as she was getting out of bed.

Dr. Andrew Balfour stated that he had attended, when in China, the wife of an engineer on board a steamer, who suffered from remittent fever in the eighth month of her pregnancy. The whole ovum in that case was expelled entire, without any warning; and when he (Dr. B.) arrived and ruptured the sac, the fœtus was already dead.

Dr. Pattison said Dr. Thatcher used to tell his class of a case where he found the patient had been delivered of an entire ovum with unruptured membranes. Dr. T. had been summoned by the husband, who was in great dismay, because, as he averred, his wife had given birth to a "leg of mutton."

Dr. Alex. R. Simpson stated that Von Ritgen, the venerable professor of midwifery at Giessen had told him, that in the long course of his practice he had met with no less than seventeen cases of labour where the patient had experienced none of the ordinary labour pains; and he (Professor Von Ritgen) had been led to form the conclusion that in perfectly natural labour, pain should not necessarily be experienced, and that we had come to regard pain as a natural and necessary concomitant of labour, merely because women were almost never in a perfectly healthy condition when we were summoned to aid them during parturition. He (Dr. A. R. S.) thought that if Professor Von Ritgen's position could be established—and the facility of parturition among savages went far to prove its truth—then the objection sometimes made to the use of chloroform in labour, on the ground of its being contrary to nature, would be most completely done away with.—*Ed. Med. Journ.*, Nov. 1862.

64. *Artificial Delivery in Extremis.*—Details of an interesting case of extraction of the fœtus from the womb of a dying woman, by Dr. Belluzi, are given in *L'Union Médicale*. In 1861, the doctor relates that he was called to a woman far advanced in pregnancy, and in the last stage of phthisis. He considered it a favourable case for the post-mortem extraction of the fœtus, as recommended by Professor Rizzoli, *per vaginam*, in preference to the Cæsarean section.

On July 11th, the woman's death seemed rapidly approaching, and the foetal heart was distinctly heard. A few hours later, the foetal sounds became sensibly diminished in force; and thereupon it was resolved, instead of waiting for the woman's death, at once to extract the child, while both it and the mother were still alive. The woman was drawn to the edge of the bed, and her legs supported on chairs. "Whilst Professor Rizzoli kept the uterus," writes Dr. Belluzi, "in a suitable position, I introduced my right hand, in the form of a cone, into the vagina, gently dilated the neck of the womb, and at last felt a knee of the fœtus, ruptured the membranes, and brought the knee down into the vagina.

"At the same time, Professor Rizzoli pressed with his hands upon the fœtus (through the walls of the abdomen), so as to aid in imparting to it the movements which occur in the version. This first stage of the operation completed, I baptized the fœtus through the left foot, which protruded. Then, on drawing upon this limb, a spiral movement was given to the fœtus, whereby the nates were turned forwards as they reached the vulva. Immediately afterwards, the other limb was protruded, then the trunk, the shoulders, and the head. The child was alive. The uterus contracted sufficiently to detach the placenta. The mother (who, apparently was insensible to the operation) was replaced in bed. The child was vigorous, though evidently not at full time. It was taken to the *Enfants-Trouvés*; and two months later, at the time I write, is still there. The



operation did not seem to have in any way injuriously affected the mother. She survived it twenty hours. A post-mortem examination was made twenty-two hours after her death. The uterus was regularly contracted; and no injury was noted, except a slight scratch on the mouth of the womb. This fact demonstrates the ease with which a living foetus may be extracted from a dead woman, when no signs of labour have appeared. And it will be readily admitted that in the dying woman the operation is as easily performed as in the dead. The case shows that we may, under certain circumstances, rationally resort to the forcible extraction of the foetus *before* the death of the mother, as thereby we give the child a much greater chance of life. In every case we should follow the rule of Professor Rizzoli, which is, that the operation should be practised whenever the sounds of the foetal heart become enfeebled. I strongly recommend this operation to the profession; for until now I could not have believed that it was of such easy execution."—*Dublin Med. Press*, Dec. 3, 1862.

65. *Undescribed Cause of Delay in Labour*.—Dr. JAS. SIDEX related to the Obstetrical Society of Edinburgh (July 3, 1861) the history of a case of tedious labour that had lately come under his observation, where the presentation was natural, and the pelvis of ordinary dimensions, but the head remained many hours impacted in the brim before the pains succeeded in forcing it through. After the birth of the child, he had found the face to be unusually broad; and on comparing it with the measurements of some other infants of normal dimensions, he had found it to measure, from one malar protuberance to the other, fully a quarter of an inch more than the largest of the others. He had not been able to meet with any notice of this increase in the size of the malar bones, as a cause of delay in labour; but if attention were directed to the subject, it might prove to be a more frequent cause of tedious labour than at first sight we might imagine.—*Ed. Med. Journ.*, September, 1862.

66. *Use of the Forceps in Tedious Labour*.—Dr. HAMILTON, of Falkirk, made a communication to the Edinburgh Obstetrical Society (Nov. 27, 1861) on this subject, and began by explaining that he had first been led to the publication of the results of his obstetric practice in consequence of a statement respecting the mortality of forceps cases, contained in a review of Dr. Murphy's work in the *British and Foreign Medico-Chirurgical Review*, for October, 1852. When he (Dr. H.) was first about to commence practice, he had been greatly struck by the observation made by Dr. Reid, who had probably been known to many of the Fellows present as a skilful and experienced accoucheur, to the effect that forceps might be used in cases of tedious labour much more frequently than they usually were, not only without danger to the patient but to her advantage. Having found other trustworthy practitioners of the same opinion, he (Dr. H.) had acted on the hint, and from the time when he first began to practise, in 1833, up till 1852, he had employed the forceps in a large proportion of cases of labour, and the results of his experience had only confirmed him in his opinion of their safety and usefulness. He had then been astounded at seeing the statement of Dr. Murphy as to the great fatality in forceps cases; and having himself been under the impression that the use of the forceps was rather gaining ground, he had determined to investigate the correctness of conclusions so entirely opposed to those he had himself arrived at. "The question," as he had stated in a paper he then wrote on the subject, "to be discussed is presented to us in a condensed form at p. 422 of the *Review* referred to, the general conclusions deducible from the statistical facts collected by Dr. Murphy being—1st. That in the forceps deliveries occurring in 78,892 midwifery cases, in the hands of British, French, and German practitioners, nearly 1 in every 4 of the children was stillborn. 2d. That, in protracted labours, 'so far as the children are concerned, the proportion stillborn is very much the same, whether the forceps be employed or not; the difference, if any, being in favour of leaving these cases to nature.' 3d. 'That the use of instruments is to be discountenanced in all but exceptional cases of this kind, in which the habit of the patient is too feeble to admit of her enduring a protracted labour without risk of exhaustion.' 4th. 'That



Ramsbotham employed the forceps once in 729 cases, Joseph Clarke once in 742, Collins once in 684, Kilian once in 78, Carus once in 14, Siebold once in 9; and 'Dr. Murphy's recommendation is to employ them only in cases of positive arrest,' unless dangerous constitutional symptoms are present." As opposed to this high mortality from the use of the forceps, he (Dr. H.) had adduced the results of his own practice, and had stated that, whilst using the forceps in every seven or eight cases of labour, he had delivered 316 children, all of whom had been born alive. He had subsequently published an article in the *Edinburgh Medical Journal*, claiming for the use of the forceps the same continued immunity; and now he could point to 731 children consecutively born alive, in the delivery of from 90 to 100 of which the forceps had been employed. He (Dr. H.) thought that this startlingly favourable result indicated that the mortality which was usually attributed to the employment of the forceps was rather due to the delay in their application. He believed his practice represented very fairly that of a general country practitioner; though perhaps now that he had acquired more experience the proportion of difficult cases coming under his care might be somewhat above the average, and he now found that cases which he once thought dangerous and difficult became comparatively easy, simply from his constantly following out the principle of not delaying too long the application of the forceps. Remembering the great law that the mortality in parturition increases with the duration of the labour, and believing that the danger was greatest in those cases where the delay occurred during the second half of labour, he was always anxious to shorten this stage by every means compatible with the safety and well-being of the patient and her progeny. The first stage might go on for many hours, sometimes for days, without involving the patient in any risk, and he almost never in any case interfered until after the completion of the first half of labour. But even in an otherwise apparently normal case, if the child's head remained longer than two hours in the maternal pelvis, and the pains were at all severe, he then believed that the child's life was becoming endangered, and he never hesitated in applying the forceps. He had now employed the forceps in about 200 cases, and found no danger whatever if the head had not been allowed to become impacted. He employed the forceps in most cases as a direct extractor, but in some cases also to rectify the position. In one patient he had found it necessary to employ the forceps in nine out of her twelve confinements, although her pelvis was sufficiently roomy, in consequence of the foetal head failing to make the necessary turn in the pelvis. And now he might be allowed to state what he did not do. In the first place, he now almost never used ergot of rye in any midwifery case. He had rarely at any time employed it as an adjuvant in the first stage, and latterly he had also refrained from administering it during the second portion. He had no prejudice against the drug, but he had never been able to see that it fulfilled any good indication during the first stage of labour, and gradually he had come to give up its use altogether, so that he had not administered it to one out of his last 400 parturient patients. Secondly, he never greased the forceps, as in lectures and text-books we were instructed to do. He thought the greasing unnecessary, because there is usually no difficulty in introducing the instrument, and the unguent interfered with the firm hold of the foetal head, which was necessary to permit of due tractile force. When he first went to Falkirk he had attended a case along with an old practitioner, where the patient was delivered of twins, both of which were born dead after a tedious labour. On Saturday last he had attended a case of precisely the same kind, where he did not doubt that he would have had the same unhappy result of producing two stillborn children, had he not extracted the first child with the forceps after its head had been but a short space of time on the perinaeum: as it was, both children lived. He had described a case where he could not get the head of the child brought into the pelvis in a right direction, and where, after long-continued efforts with the forceps to rectify the position of the head had failed, in consequence of its always turning round again, he thought from the opposition presented by the rectum, he had at last to perforate the head and deliver by craniotomy. He had recently met with a similar case, where the head lay in the left oblique diameter occipito-anteriorly, but could not be brought down into the pelvis until he had turned it by means of the forceps

through three-fourths of the circle of the pelvic brim, so that at last it presented occipito-anteriorly in the right oblique diameter.

Dr. Hamilton maintained that the forceps was preferable to turning, because he had seen several children born dead where the latter operation had been employed, and in one case the vertebrae of the neck had become dislocated whilst the child was being extracted, so that delivery could not be completed until the foetal head had been opened. He always used Ziegler's forceps, and usually applied them after the head had descended so far into the pelvic cavity as to allow the tip of the ear to be easily felt by the finger. In reply to a question put by Dr. Moir, Dr. Hamilton repeated that he had not had a single still-birth among 731 children that he had delivered successively; and in reply to a question by Dr. Figg, he (Dr. H.) explained that although he had delivered some children that died very shortly after birth, yet he did not count a child stillborn if it continued to breathe, if only for five minutes.—*Edinburgh Med. Journ.*, Oct. 1862.

67. *Post-partum Hemorrhage*.—Dr. HAMILTON stated to the Edinburgh Obstetrical Society, that in the treatment of *post-partum* hemorrhage his practice was to clear out the clots from the interior of the uterus, and then to compress the uterus between the two hands. To produce effectual compression he introduced one hand into the vagina and applied it along the back wall of the uterus, and by then applying the other hand on the abdomen he could keep the uterus flattened between the two hands for ten minutes or a quarter of an hour, or three-quarters of an hour, or till such time as all tendency to the recurrence of the hemorrhage had ceased. The uterus could be felt between the two hands like a collapsed India-rubber bottle, and the front and back walls could be held in most accurate contact. He had followed the practice, and that of grasping the mouth of the uterus, for above twenty years, and never saw a case where he could not at once and effectually check the flooding after delivery.

Professor Simpson remarked that the practice recommended by Dr. Hamilton was attended with this drawback in some cases, that the introduction of the hand into the vagina was occasionally so painful that the patient rebelled against it. In one case the patient would not submit to the introduction of the hand except on condition that she were kept under chloroform. He preferred to compress the uterus through the abdominal walls, and found them so relaxed that he could easily pass one hand behind and the other in front of the organ so as to compress it between them.—*Ed. Med. Journ.*, Oct. 1862.

68. *New Transfusion Apparatus*.—Dr. HAMILTON exhibited to the Edinburgh Obstetrical Society an apparatus which he had contrived for the performance of transfusion, and gave the following account of it:—

The method of treating *post-partum* hemorrhage, which I have described in the last October number of the *Edinburgh Medical Journal*, furnishes to the practitioner a simple, and, as far as my experience for upwards of twenty years in its use enables me to speak, a certain and immediate means of restraining this affection. I have said, however, that even where this is done at once and effectually, death may take place from the drain of blood having already been so great, or so rapid, that the system is unable to rally, notwithstanding the use of all the common appliances. Two years since, I met with a painful case of this kind. Returning from the country about two o'clock one afternoon, I was told that urgent messages had been left for me to see a patient in the town, whom I found with all the usual symptoms of extreme depression from flooding. A midwife had delivered her some hours previously, and a brother practitioner in my absence had also seen the woman. I instantly extracted from the uterus a moderate-sized clot of blood, and applied compression with both hands, in the way I have explained in the article referred to, so that I was certain no more blood was lost. Notwithstanding this being done, and also pouring into the patient an abundance of stimulants, the urgent symptoms continued to increase, so that about 3 P. M. her case was becoming desperate. I therefore resolved, with the assistance of my professional brother, to attempt staying the fatal result by transfusion. My transfusing apparatus was not in such exact working



order as to give me perfect confidence in operating with it; and, while getting this remedied, about half an hour was lost, and the patient sunk. I have seen and heard of a good number of such cases in my own neighbourhood, and quite recently a lady under my care very nearly lost her life from an insidious flooding of about four hours' duration. These distressing cases determined me, when next similarly called upon to act, to have my transfusing apparatus in working condition, and especially to have the syringe in such a state as to secure me from the risk of pumping air, instead of blood, into the patient. I was not very much encouraged by the trials I made on this subject, and I at first thought of connecting with the tube leading from the syringe a glass trap, to catch bubbles of air, if they should by accident get mixed with the blood; and, thinking more upon the subject, I asked myself whether there existed any necessity for a syringe at all. The result was, the construction of the simple little instrument which I now exhibit. It consists of a funnel for receiving the blood, say four inches broad at the mouth, with a stop-cock attached to it; of a small tube, for introduction into the vein of the patient, also having a stop-cock attached to it; and of an India-rubber tube, two feet long, for connecting the two. In operating with this instrument, I propose that the patient should be placed at a lower level than the person from whom the blood is to be drawn, so that we may have, 1st. The force of gravitation to impel the blood forwards; and, 2d. That we may thus effectually provide for the non-entrance of air into the veins, as the air, being the lighter body, must always keep on the surface. In order to test the practical working of this instrument, I got two dogs, upon which I performed a few experiments. Having heated the instrument, by pouring warmish water through it, in the first experiment I opened the jugular vein of the dog from which the blood was to be taken, and allowed the blood to issue from the tubule before this was introduced into the same vein of the other dog. I did this in order to expel the air, but found that, during the time thus lost, the blood in the funnel and tube had coagulated. In my next experiment I avoided the chance of this happening, by filling the tube and the lower portion of the funnel with warmish water, introducing the tubule into the vein, and then opening the vein of the dog from which the blood was to be drawn. In this way a small quantity of the blood ran off, but still coagulation took place too rapidly to make the experiment satisfactory. In my third experiment I used simply luke-warm water, and then I found I could with ease inject any quantity I desired. I now tried the action of the apparatus with human blood. I first filled it, as before, with luke-warm water, and shut the stop-cocks; and, just before opening the vein of the patient, emptied out the whole except what remained in the tube and bottom of the funnel, which I afterwards found amounted to about two drachms. As soon as two or three drachms of blood had been drawn, I opened both stop-cocks, and allowed it to run off, and I found that it ran in a continuous stream into a plate, until I had obtained the quantity I wished to abstract, viz., about eighteen ounces. I found that, by regulating the stop-cock connected with the funnel, I could, with great ease, keep only a few drachms in the funnel, thus making the transfer from the patient to the plate almost immediate. I repeated this experiment, with exactly the same result: the blood in the plate presenting next day, as far as I could judge, precisely the same appearance as if it had been drawn direct from the patient. I find that water falls through the whole length of the tube in about  $2\frac{1}{2}$  seconds, and an ounce of water runs off from the funnel in 8 seconds, so that the exposure of the blood, where the stream is kept continuous, must be very trifling, and probably will be found, when the instrument used is made entirely, or chiefly, of non-conducting materials, neither to lower its temperature much, nor to alter unfavourably its vital properties. Combining the results of the two sets of experiments, there seems to be little reason to doubt that transfusion of blood, or injection of water or other fluids, might with ease be effected with this instrument in the human subject, or in animals. Transfusion with dog's blood is much more difficult than where human blood is employed. Dr. Blundell found that the first coagulates in 10 seconds, whereas the latter takes 60 seconds to coagulate; and hence, no doubt, the reason why he employed human blood to transfuse into dogs.

My feeling is, that many lives are annually lost, in obstetric practice alone,



from loss of blood; and, looking at the recorded cases I have seen in which transfusion had been employed, it seems to me that they offer great encouragement to its more frequent use. The great obstacles I think hitherto to using it have been, the complexity and expense of the apparatus used, the dread of introducing air in dangerous quantities into the veins from the use of the syringe, and timidity on the part of the surgeon, from want of dexterity or want of practice, in performing the operation. If my anticipations be correct, such an instrument as I have exhibited may remove the two former obstacles, for it is so simple, that it can with the greatest ease be cleaned and kept in order; it will cost only a few shillings, and could therefore be in every practitioner's possession; and, with the most ordinary care, it renders impossible the entrance of air into the veins. As to the third obstacle I have mentioned, practitioners could easily remove it by performing a few experiments on dogs, with water instead of blood: the injection of a moderate quantity at a proper temperature apparently doing them no harm. I will only add the usual caution given in these cases, that the experimenter be careful to expose properly the vein before incising it, otherwise he will run great risk of injecting the fluid into the cellular tissue, instead of the vein. I was assisted in my experiments by Mr. Heriot, veterinary surgeon, Falkirk, who secured the dogs, and applied the ligature to "start" the vein. After shaving off the hair, I pinched up the skin over the vein with my left thumb and forefinger, made an incision with a sharp curved bistoury in the course of the vein, gently dissected the cellular tissue from the vein, and then opened it.

After I had made the experiments I have detailed, I found, on consulting Dr. Blundell's paper on Transfusion, and his Principles of Midwifery, published in 1839, that he also had the idea that an instrument of a simple kind might be used in transfusion instead of the syringe, but, curiously enough, he seems never to have constructed or employed it. In his Principles of Midwifery (p. 255), he says, "transfusion from artery to vein, or perhaps even from vein to vein, might be accomplished by tubule simply;" that is, as I understand it, by connecting the two together; and again, "a fall of two or three inches, perhaps less, is sufficient to move by gravitation the blood into the vein." Dr. Blundell proposes to call this a "gravitator," and the name seems a very appropriate one both for his and my own instrument. Instead of two or three inches of a fall, however, I think that in my instrument great advantage will result from having the India-rubber tube two feet in length, as this both gives facility in adapting the instrument, and furnishes no more than enough of gravitating power for propelling the fluid, as a substitute for the syringe. It seems to me, however, that quite sufficient force can be thus acquired for what is wanted, of a kind, too, somewhat like the equable gentle force employed by nature in the venous circulation; and that, until coagulation takes place, there need be little fear of the flow of blood keeping continuous. If coagulation has taken place, any exertion of force with a syringe or otherwise would only, I think, be likely to do harm, by propelling coagula into the veins. In such a case, much the best plan, I think, would be at once to remove the instrument, clean it out, and reapply it.

In transfusing in the human subject, I would be inclined to proceed in the same way as I did in my second experiment on the dogs. Filling the instrument with water of the proper temperature, and introducing the tube into the vein of the patient, before the supplying vein is opened, will both prevent any material abstraction of heat from the blood, and will also obviate the risk of coagulation, should any unexpected delay occur. The two drachms of water that would thus be first introduced into the veins, would probably be beneficial rather than otherwise.

In the instrument I have used, the two stop-cocks and the tube to introduce into the vein are metallic; but Messrs. Thornton inform me, that these, as well as the funnel, could be made of vulcanite, one of the best materials I know of for such a purpose, being both a good non-conductor of heat, and little liable to alteration of its surface. Any one wishing to possess such an instrument may obtain it by applying to Messrs. Thornton, India-rubber Warehouse, Princes Street, Edinburgh.—*Ed. Med. Journ.*, Oct. 1862.

69. *Repeated Twin Births.*—J. L. BRITTAI<sup>n</sup> communicated to the Edinburgh Obstetrical Society the following case of frequent twin pregnancy, which occurred in the practice of his father:—

"Mrs. J., *et.* 47, was first pregnant at the age of 25. She has had 14 pregnancies and 25 children, having had twins 11 times. Of the 11 cases of twins, in 8, both children were born at the full time; in 2, one *fœtus* was aborted about the third month, the other being carried to the full time; and in one, she miscarried both at the fourth month.

"Of the 8 cases in which the children were born at the full term, the sex was boy and girl, 5 times; both girls, twice; both boys, once.

"In the miscarriage case they were boy and girl; in the first case of miscarrying, one of the two, a girl was aborted, a boy born at full time; in the second, a boy was aborted, and another carried.

"Mrs. J.'s mother had twins once; but she never heard of another instance in either her or her husband's family.

"Mrs. J. was delivered—

			Presentation.
1839, Sept. 9,	Boy and Girl.	Full time.	Both head.
1840, July —,	Girl.	Four months.	Not observed.
1841, Jan. 12,	Boy. <sup>1</sup>	Full time.	Head.
1842, Nov. 22,	Girl.	Full time.	Head.
1843, July —,	Boy and Girl.	Four months.	Not observed.
1844, July 21,	Boy and Girl.	Full time.	Both head.
1845, July 3,	Boy and Girl.	"	Both head.
1847, April 10,	Boy and Girl.	"	1st, foot; 2d, head.
1849, July 26,	Boy.	"	Head.
1851, Jan. 24,	Girl and Girl.	"	1st, head; 2d, foot.
1852, May 7,	Girl and Girl.	"	1st, breech; 2d, foot.
1853, Aug. 2,	Girl.	"	Head.
1854, Aug. 17,	Boy and Boy.	"	Both head.
1855, Nov. 17,	Boy.	"	Head.
(And miscarried a boy in April.)			
1857, April 6,	Boy and Girl.	"	1st, foot; 2d, head.

"All at full time born alive. Some died within twelve months, some in a few years; and there are several alive and strong."—*Ed. Med. Journ.*, Nov. 1862.

70. *Extra Uterine Pregnancy.*—Dr. BRANDT, of Madeira, presented to the Obstetrical Society of Edinburgh (November 13, 1861) the following notes of a curious case of extra uterine conception: Francisca Amelia Vieira was born in the island of Madeira in the year 1778. Was married to Alexander Vieira in 1795. Was confined of her first child (a son) on the 20th of September, 1796, who died in London on the 31st March, 1802, aged five years, six months, and ten days. Five years after the first confinement she had a daughter named Maria, who was baptized at home, and died soon after. Three years after this she became in the family way, but was never confined of it. Four years after she was confined of a son named Ernesto, who is still living in Italy; still remaining in the family way of the third child. Seven years after the birth of Ernesto, she was confined of a daughter, who is also still living, called Amalia Augusta Vieira. She died on the 7th September, 1858. On the 8th September, 1858, at 8 o'clock A. M., the post-mortem examination was made on the body of Francisca Amelia Vieira, in the presence of Dr. Juvenal Osorio de Ornellas, Surgeons Joao Nepomeceno Gomez and Francisco Simplicio Lomelino, Henry Crawford, the head nurse, several students and chemists, and the servants of the hospital. A bony tumour was extracted from the abdomen, on the right side of the uterus in the Fallopian tubes of that side; the uterus, and Fallopian tubes on the left side were perfect. The tumour weighed 4 pounds, was 8 inches in length, 5½ inches in diameter, and 16 inches in circumference. The tumour was divided longitudinally with a saw, as near the centre line as possible.

<sup>1</sup> Within six months after the last.



The two parts of the tumour which I saw in April, 1861, were very much disfigured, being badly preserved in a dry state, and almost crumbling to pieces.

Francisca Amelia Vieira was born in 1778.

Married	in 1795	. . .	17	years old.	
First child	" 1796	. . .	18	"	Son.
Second child	" 1801	. . .	23	"	Daughter.
Pregnant	" 1804	. . .	26	"	Not born.
Third child	" 1808	. . .	30	"	Son living.
Fourth child	" 1815	. . .	37	"	Daughter living.
Died	" 1858	. . .	80	"	

Was pregnant of the third conception fifty-four years.

The tumour or bony cyst contained a fœtus, which, from certain signs which will hereafter be mentioned, must have lived a long time after the natural term of birth. Its position in the bony case was, head uppermost, looking to the left and downwards, spine and back lying against the right side of the cavity, the nates occupied the inferior part of the cavity, the thighs and legs turned up, so that the feet were next the head; the whole body was twisted. It so happened that the saw cut through the head and body, dividing it through the median line; but as the body was twisted, the section could not show two equal sides.

The head, in consequence of the pressure exercised on it by the cyst, was crushed in such a way that the parietal bones *passed over* the occipital and part of the left temporal bones, and *under* the posterior border of the frontal bone; from appearances the whole of the cranium was ossified.

The upper jaw of the larger half of the head has three teeth, one of which appears to be the second molar; the depressions of these teeth can be seen on the corresponding side of the other half of the head.

The two inferior extremities and the right arm and hand are placed between the right side of the head and the parietes of the cyst, in a very compressed state. The left arm and hand are situated on the opposite side of the head, between this and the corresponding side of the cyst, also in a compressed state.

Part of the umbilical cord can be traced round the neck, along the right side of the face and body, with the inferior members, to the navel. The instep of the left foot is placed against the chin and mouth, there forming a depression. From the different positions of parts above mentioned, it is clear that the whole body from the neck downwards is twisted from left to right, and the inferior members are turned upwards along the right side of the trunk.

The right knee lies on the mastoid process (right); the right foot lies in the following way: External border on sutura sagittalis. Heel, on the molar bone, right side. Sole, part on the right side of the frontal, and part on the temporal bone (right). The left femur, which was cut longitudinally by the saw, presents a small medullary cavity; the compact tissue is extremely hard, and has the appearance of ivory (eburné). On the condyles of the tibia can be seen remains of the epiphysarian cartilage; the left omoplate, which was also sawed, is extremely hard. The liver is excessively large; part of the intestines are visible.

—*Ed. Med. Journ.*, September, 1862.

71. *Extra Uterine Fœtation: The Fœtus in the Sac of the Hernia.*—An instance of this extraordinary and probably unique occurrence is related by Herr W. Müller, a surgeon of Hohenweih. The woman was a strong person, aged 38, accustomed to very hard physical labour, in consequence of which she had become affected with an inguinal hernia of the right side. Under these circumstances she ceased to menstruate, and began to experience all the signs of pregnancy, except that the belly did not enlarge. The hernial tumour, however, steadily increased in size, and on M. Müller's first visit to the patient he could detect by means of the stethoscope a sound exactly answering in character to a placental murmur. The diagnosis of a living extra-uterine fœtus was confidently made, and, as the woman was at full term, an operation was proposed and assented to. An incision having been carefully made into the sac, the fœtus was cautiously extracted, and found to be of full development and healthy. The cord was tied in the ordinary way, and divided. The superficial hemorrhage



was easily arrested, the placenta removed, and a compress applied, when the patient was observed to become silent and pale; and the signs of an internal hemorrhage developed themselves. In spite of remedies the woman sank one hour after the conclusion of the operation. Chloroform was used in the performance of the latter. Unfortunately no necroscopic inspection of the body could be obtained, as the friends had religious scruples on the subject.—*Lond. Med. Rev.*, Oct. 1862, from *Allgemeine Wiener Med. Zeitung*.

72. *Retroversion of Pregnant Uterus*.—Dr. BRUCE read before the Edinburgh Obstetrical Society the following case of this: “On the 24th of March last, I was sent for to see Mrs. G., and on visiting her I found her condition to be as follows: She is an unhealthy woman; one arm is almost useless; pieces of bone have come out of it, and others will probably follow. She has an anxious expression of countenance, and complains of frequent efforts to bear down, and of difficult micturition. She had been troubled with prolapsus uteri for some time before, which condition disappeared, and then the above symptoms supervened. These had existed for several days before I saw her, and she had sent for a midwife, thinking she was about to miscarry. She thought she was pregnant, not having menstruated for three months previously. Her abdomen was very much enlarged, as much so as at a considerably advanced period of pregnancy. General treatment was had recourse to for a time, but only with partial and temporary benefit.

“On making a vaginal examination then, I failed to discover the os uteri, and could only feel a tumour of considerable size, supposed to be the uterus much enlarged. No improvement taking place, on the contrary, the patient becoming worse, and the bearing down more severe, I made a further examination, and, on pressing up as far as possible to try and reach the os, a gush of liquid came away, and the patient expressed herself at once as being much relieved, while there was a corresponding reduction in the size of the abdomen—the walls of which were previously quite tense becoming much more yielding. This amelioration, however, did not continue long, as next day matters were much the same as before; the fluid having reaccumulated.

“On repeating the examination, and pressing upwards as before, more fluid came away just as on the former occasion, and with the same effect of affording relief to her symptoms; but, as at the former examination, I was unable to touch the os uteri. The fluid continued to flow in large quantities, rendering the patient very uncomfortable. The urine was drawn off several times, but there was no great accumulation of it.

“At this period of the case Dr. Keiller saw the patient along with me, and was equally unsuccessful in reaching the os. He agreed with me in thinking that the uterus must be retroverted, and recommended that the patient should be removed to the infirmary, when he would give chloroform and introduce the hand into the vagina, so as to make a thorough examination, and remedy the condition if possible. I may state that every attempt at examination brought on very severe bearing-down efforts. After taking some time to consider, she made up her mind to go to the infirmary, and on the 22d of April she placed herself under Dr. Keiller's care. She was then brought under the influence of chloroform, and Dr. Keiller having introduced his hand well in, was enabled to feel the os tilted high up, and now the excessive bearing-down was well seen, the uterus being forced down in a very extraordinary manner, and pressing strongly upon the perineum, just like the child's head during the strong expulsive pains before delivery; it could be compared to nothing else. Dr. Keiller now by manipulating (drawing down the os with his thumb, and pushing up the body of the uterus with his fingers), was successful in replacing the organ in its normal position, the mass going up with a jerk, immediately upon which the tumour disappeared, and the os was found to occupy its proper place. A little blood came away during the operation. Next day the patient expressed herself as being greatly relieved, the bearing-down pains having entirely ceased, and her countenance betokening how much easier she was. The existence of pregnancy was not decidedly made out, for if she had been in this condition we would have expected labour to be induced by the treatment she was subjected to, particu-

larly after the escape of the liquor amnii, but nothing of the kind occurred. She remained in the infirmary for some time subsequently, being very weak, and some small portions of bone were removed from the arm; but before she left the sounds of fetal heart were distinctly made out. In the month of August I saw this patient going about comparatively well, and expecting her confinement in a month or two. I afterwards ascertained that she was delivered on the 25th September of a living and healthy-looking child, and made a very good recovery."—*Edinburgh Med. Journal*.

73. *Dr. Hodge's Pessary for Retroversion of the Uterus*.—Dr. CHURCHILL exhibited to the Dublin Obstetrical Society, specimens of a pessary for retroversion, invented by Dr. Hodge, of Philadelphia. Each pessary consisted of an upright and a horizontal portion; the former to occupy the vaginal *cul-de-sac* behind the cervix uteri, whilst the latter portion lies along the vagina to the arch of the pubis. Dr. Churchill reminded the society that some years ago he exhibited a pessary constructed for the purpose of distending upwards the posterior *cul-de-sac*, but differing in form from Dr. Hodge's. After trying both, Dr. Churchill pronounced his experience to be entirely in favour of Dr. Hodge's instrument, and he begged to recommend it to the society. He had tried it in ordinary cases of retroversion; and in one extremely difficult case, and with remarkable benefit. It occasions no irritation, absolutely precludes the retroversion when properly fitted, and will materially aid in raising the fallen womb when it cannot be at once reduced.—*Dublin Quart. Journ. Med. Sci.*, Aug. 1862.

74. *The Changes of Body-weight in Pregnant, Parturient, and Puerperal Women*.—Dr. GASSNER availed himself of his residence in the Lying-in Hospital of Munich to institute an extended series of observations on the variations in body-weight of pregnant and lying-in women. His observations appear to have been made with every care to avoid fallacy. His memoir contains a number of tables, in which the results are detailed and classified. We can only here give some of the conclusions:—

*Pregnancy*.—During the last three months the body increases in substance, and so remarkably that the gain cannot be explained by the growth of the ovum alone. The maternal organism shares in the increase. A diminution of weight is pathological. The increase of the body-mass during the period named is a thirteenth part of the body.

Primiparæ do not gain so much in proportion as multiparæ.

The intra-uterine retention of a dead fetus is constantly attended by a considerable loss of the maternal body-mass. This circumstance may come in aid to diagnosis, when auscultation no longer detects sounds of fetal heart.

*Labour*.—The loss of weight following labour is on an average nearly the ninth part of the body-weight of a pregnant woman who has reached the end of the tenth month. It is constituted of the expelled ovum, blood excrements voided during labour, and the lung and skin exhalations.

The weight of the entire ripe ovum, fetus, liquor amnii, and placenta is about the 10.8 part of the body-weight of the woman in labour.

The mass of the several parts of the ovum at the end of pregnancy may be stated as follows:—

The weight of the child	:	to weight of the ovum	=	1 : 1.755
" " liquor amnii	:	" "	=	1 : 3.070
" " placenta	:	" "	=	1 : 9.600

The weight of the ovum and of its components—that is, of the child, liquor amnii, and placenta, is in proportion to the body-weight of the mother.

The mature ovum of the primipara is smaller than that of the multipara.

The quantity of the amniotic fluid increases during the latter three months of pregnancy.

In all cases where a change of position, or a *culbute* of the child, took place in utero, a disproportional increase of liquor amnii was present.

The size of the periphery of the abdomen at the end of pregnancy is in direct proportion to the sum of the body-weight of the pregnant woman. This should be borne in mind in estimating the question of twins.



*Puerpery.*—The loss of weight during the first eight days of the labour, occasioned by excretions, secretions, especially of the lochia and milk, increased excretion of urine, and the involution of the genitals, is on an average the twelfth part of the mother's body. This loss is the greater in proportion to the proximity of the labour to the normal term of gestation.

In primiparæ and in women who do not suckle, this loss is somewhat less than in pluriparæ and suckling women.

The loss is in direct proportion to the quantity of the body-mass of the lying-in woman.

The surprising loss of weight on the first day of childbed is due to the increased secretion of urine resulting from the resorption of the serous infiltration which took place during pregnancy, to the more copious lochial discharge, and to the scarcely ever failing sweat.

The loss of weight due to labour and childbed amounts on an average to the fifth part of the body-weight of the pregnant woman.—*Brit. and For. Med.-Chir. Review*, Oct. 1862, from *Mon. f. Geburtsk.*, January, 1862.

75. *The Organic Connection of the Fallopian Tube with the Ovary.*—Dr. PANCK, relying upon comparative anatomy and observations on the human subject, submits that the adhesion of the orifice of the Fallopian tube with the ovary at the time of conception, takes place through a newly-formed membrane, which at a later period is absorbed. He examined the body of a girl who had died shortly after conception, and found a delicate new membrane, which fastened the fringes of the tube to the ovary. In subsequent researches Dr. Panck found a similar membrane so frequently as 34 times out of 58 cases, but only in women who had borne children, and only on the posterior wall of the uterus and of the ala vespertilionis. At times rudiments only could be observed; in other cases numerous strings and expansions covered the whole posterior surface of the uterus and ala. These have extended over the anterior aspect, on the bladder or rectum. The most various degrees of adhesion, from partial attachment to complete capsular investment of the ovary, were found. The membranes were thin, delicate, translucent, and could be easily separated from the serous membrane, which always exhibited its normal appearance. Similar appearances are found in animals whose ovaries lie free, as in man.—*Brit. and For. Med.-Chir. Review*, Oct. 1862, from *St. Petersb. Med. Zeitschr.*, 1862, and *Mon. f. Geburtsk.*, June, 1862.

76. *Ovarian Cyst Discharging through Vagina.*—The following note from Dr. IRVINE, of Pitlochry, was communicated to the Edinburgh Obstetrical Society:—

"Mrs. Sloan, æt. 42; married for twenty-two years. Never pregnant. Has menstruated regularly all her life, and still continues to do so. First discovered a swelling in her right side fifteen years ago, which was recognized as an ovarian tumour. For six years the abdomen has been enormously distended, much as at present, when it measures 46 inches, she being a middle-sized and spare woman. She suffered much from the distension, such as inability to lie down, retention of urine requiring the aid of the catheter, cedematous legs, etc., until a year ago, when a watery fluid began to escape from the vagina, and has continued, almost weekly, ever since, with obvious subsidence on each occasion of the abdominal distension and relief of her distress. The quantity discharged at any time she estimated at about a quart, sometimes more, sometimes less; but it is invariably most abundant just before the menstrual period; at this time she has always experienced an increase of her sufferings, but this monthly aggravation has been much less since the watery discharge began. The fluid escapes without previous warning or accompanying pain, often when sitting quietly in her chair, is perfectly limpid, and scarcely stiffens or discolours her linen. Her general health is good, she performs the work of her house often without a servant, can walk several miles at a time, and her chief complaint is of the weight and of the aching in her loins after any fatigue."

Dr. Moir mentioned that the late Dr. Hamilton had a similar case, the preparation of which was in the University. He (Dr. M.) thought that in cases



where the ovary was adhesive to the Fallopian tube, that the fluid might find its way through the latter into the uterus and vagina.

Dr. A. Simpson stated that Frank had recorded a case of this kind, and had expressed the opinion that the periodical discharge of fluid took place through the Fallopian tube; but it was difficult to conceive of that narrow canal allowing of the passage of the large quantities of fluid that seemed at times in such cases to escape; and it might perhaps be found that in some of these cases an adhesion had taken place between the cyst and the body of the uterus or the roof of the vagina, where subsequently rupture of the walls occurred.—*Edinburgh Med. Journal*, Oct. 1862.

77. *Diseased Placenta*.—Dr. McCLINTOCK observed, at the meeting of the Dublin Pathological Society, March 29, 1862, that diseases of the after-birth were so rare, and their pathology was so much involved in obscurity, that any new fact, however small, was worth being brought forward, and put on record. Before he showed the coloured drawing he intended exhibiting to the society, he would advert to the pathology of the disease, which had been very unhappily termed "hydatids of the uterus," which was a great misnomer—for the disease in question was not hydatids, neither was the uterus the part affected. The disease was seated in the chorion, and consisted in a development of cysts on its outer surface. It was correctly called, by Mr. Paget, "cystic disease of the ovum."

There was no recorded instance of a living embryo being born of a mother who had this cystic disease. The opinion entertained in the present day was that the cystic disease in the chorion was a consequence, a result of the death of the embryo, and not the cause. There were, just then, two points which he wanted to dwell upon with reference to hydatids of the uterus: First, That the disease occurred in the villi of the chorion. Secondly, that it was extremely rare to see an embryo expelled when the disease existed; and that there was no recorded example of a living embryo being so expelled. Nine cases came under his own care of the disease, and in one only was there any vestige of an embryo. These cysts very rarely became developed after three or four months; but when they originated after that period they were necessarily confined to the placenta.

Now these remarks were merely prefatory to the exhibition of this very beautifully executed and faithful representation of a placenta. The history of the case was as follows: The patient from whom this placenta was expelled was confined in the Lying-in Hospital, at the end of eight months, of twins. There were two placenta, of about the usual size, one of which was represented in the drawing. Both children were alive; and, on an examination of the surface of the after-birth, there were discovered four or five well marked cysts, the largest the size of a full grown grape. Now what was the nature of these cysts? He was not aware of any recorded instance where such a morbid appearance was found in the placenta. He had examined many diseased placenta himself, and except in that solitary instance, he never saw anything similar to this. They were true cysts, and contained a limpid yellowish-coloured fluid, of a somewhat syrupy consistence. On close examination these cysts—five in number—were found lying on the external surface of the chorion, and closely connected with it. Now, what was the nature of these cysts? In what light are they to be regarded? He was of opinion that their pathogenesis was the same as that of the cystic disease or vesicular hydatid of the ovum. They were certainly a cyst formation, attached to the outer surface of the chorion. If this opinion were correct, the case was a very singular one, as furnishing an example of the vesicular hydatids at so late a period of gestation as the eighth month, and also as being in connection with a living foetus.—*March*, 29, 1862.—*Dublin Quart. Journ. Med. Sci.*, Aug. 1862.

78. *Apnoea Neonatorum*.—MR. GREAVES, of Manchester, in a valuable paper on this subject in the *British Medical Journal*, page 65, thus sums up the conclusions at which he has arrived: 1. That the effect of even the earlier labour-pains is to close the ultimate ramifications of the uterine arteries, but that this closure is temporary only, and ends with the termination of each pain. 2. That, during the pains, the blood contained in the sinuses of the maternal placenta,

not being renewed by fresh supplies of arterial blood from the curling arteries, cannot effect the needful changes in the foetal blood in the placental tufts. 3. That the blood contained in the tufts, remaining venous, stagnates in their capillaries, and that the umbilical circulation is thus arrested. 4. That, as a consequence of this arrest, the aorta of the foetus and the ventricles of its heart become congested, and at the same time the brain ceases to be supplied with arterialized blood. 5. That, consequently, the rate of pulsation of the foetal heart sinks nearly to half its normal frequency. 6. That, if these periods of lowered force of the foetal circulation occur too frequently, as in tedious labour, or too closely together, as in very hurried parturition, the child may be born almost or altogether inanimate. 7. That the effects of the suspension of the breathing function of the placenta are intensified by pressure on the funis, or on the head or thorax of the foetus. 8. That where there is not some mechanical obstruction to respiration, such as tenacious mucus in the fauces, or the membranes over the face, the efficient cause of still-birth is an excessive degree of a condition which at birth always prevails normally, viz., congestion of the foetal heart, which is to be relieved, first by bleeding from the cord, and, secondly, by exciting respiration. 9. That the difference between the syncopal and apoplectic forms of still-birth, is that in the latter there have been imperfect acts of respiration which, by closing the foramen ovale, have caused general venous congestion.—*Lond. Med. Rev.*, Oct. 1862.

#### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

79. *New Cause of Death under Chloroform.*—Dr. G. W. BALFOUR remarked at the meeting of the Obstetrical Society of Edinburgh, June 12, 1861, that as the public and the profession were indebted to an obstetric physician for the benefits of chloroform, the following peculiar case of death from that article, though strictly speaking a surgical one, could not be uninteresting to an obstetrical society. The case occurred during the Burmese war in 1853; and was related in a letter from John Balfour, Esq., D. I. G., then field-surgeon to the army in Burmah. A soldier received a gunshot wound through the upper part of the thigh, and secondary hemorrhage repeatedly recurred. It was supposed that the profunda or one of its branches was injured, and it was determined to tie the femoral artery above and below the origin of the profunda;—this was done while the man was under chloroform. In the course of the operation the man, who had had his dinner previously, became sick and vomited. He subsequently sank and shortly died from exhaustion, as was supposed. On examination of the body, the profunda was found cut across by the ball, and a false aneurism formed at the seat of injury, and *the trachea was found filled with vomited matters*. Dr. Balfour remarked that, though an extreme case, this was but a sample of one very common source of danger in the use of chloroform, arising from its anæsthetic properties interfering with the natural actions of the nervous system, and that the anæmic condition of the patient probably had its influence in favouring the fatal result, anæmia being one of the conditions most commonly found in all fatal cases following the using of chloroform; in which, however, by far the most common and constant post-mortem appearance was a collapsed condition of the heart, a condition rarely, if ever, found after death from any other cause, and favouring the supposition that death in most of such cases is caused by direct paralysis of that organ, a supposition further favoured by the fact, that death from chloroform has generally occurred when the patients were in the sitting or half-lying posture, when of course syncope was more likely to occur than when wholly recumbent, as well as by its remarkable safety in midwifery, in which we had a most efficient and delicate test of its action on the hollow involuntary muscles in its action on the uterine pains. Dr. Balfour also directed attention to a statement of Stanelli, that bubbles of gas had been seen escaping from the veins and arteries of those operated on under chloroform, and to the possibility, therefore, of chloroform forming gaseous bubbles within the vascular system, interfering with the heart's action, and thus proving a merely



*mechanical* cause of death. He also pointed out that Dr. Casper, of Berlin, had distinctly made out the possibility of chronic chloroform poisoning, which might end fatally after hours, days, or even weeks; and that this, though a subject of extreme difficulty, was one which deserved most careful consideration, particularly in regard to cases of death after childbirth, in which chloroform had been employed, and where, from the apparent absence of any sufficient cause, the death had usually been referred to toxæmia. In midwifery, we have a most efficient test of the saturation of the patient's system with chloroform in its action on the uterine pains, and as its interference with the continuance of these is a signal for its partial withdrawal, there is, we may almost say, a positive immunity from sudden death from chloroform during labour, because the heart's action continues wholly unaffected long after anæsthetics have produced complete cessation of the labour pains. But the long continuance of labour generally, and the amount of chloroform administered during its continuance, is most favourable to the production of a state of chronic poisoning, particularly where the patient was originally anæmic, or has become so by flooding subsequent to parturition; and in the latter case, the loss of a very small amount of blood, the vital stimulant, might very readily prove fatal where the heart was already half paralyzed. The subject seemed to be one deserving of the most careful consideration.

Remarks were made by various members as to the inconvenience and occasional danger of administering chloroform to patients who had been taking food shortly before; and cases in point were adduced. It had been observed also that the same patient required a larger dose of chloroform after a meal than she did when she was anæsthetized fasting.—*Ed. Med. Journal*, Aug. 1862.

80. *Tannin as an Antidote to Strychnia*.—Prof. KURZAK gives the following results of experiments made by him upon rabbits and dogs, in which tannin was administered as the antidote to strychnia. He says that when administered in proper time, tannin is an excellent antidote, and the favourable results produced by the experiments on rabbits and dogs give every hope of analogous results upon man.

It is necessary that the dose of tannin be from twenty to twenty-five times that of the strychnia which has been taken; and in cases of poisoning, it would even be prudent to make the dose of tannin much stronger still.

The powder can be immediately employed and obtained by pulverizing nut-galls, and then making an infusion of this latter substance.

An infusion of black tea may be useful when the dose of strychnia is not very great; coffee also possesses the same properties, but in a less degree than tea.

The bark of the oak, which contains 8.5 in 100 of tannic acid, may be rendered serviceable by the facility with which it can be procured; it is also employed pulverized or in decoctions similar to that of nut-galls.

The author mentions besides, acorns, the bark of the chestnut-tree and the willow, the skins of nuts, the root of tormentil, pinks, and snakeweed as rich in tannin.

It is important to avoid the use of vegetable acids whilst administering tannin, on account of the solubility in these acids of the precipitate produced by the tannin in the solutions of strychnia. It is the same with alcoholic drinks. In fact, it is important to avoid every kind of voluntary movement, and all excitement, of whatever nature it may be, these influences being capable of producing spasmodic contractions.—*B. and F. Med-Chir. Rev.*, Oct. 1862, from *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, 1862.

81. *Detection of Blood Stains*. By Dr. ERDMANN.—The most recent investigations have shown that the crystals of hæmine discovered by Erdmann are the only constant elements of a solid judgment as to the nature of stains of a doubtful nature. There is no question but that blood-globules are characteristic of blood; but as in many cases the stains to be submitted to analysis are not recent, and as the red globules become altered with great facility, their presence cannot serve as an infallible criterion. As to the white corpuscles, Neuhauser has put in its true light the importance which has been recently attempted to be attached to them, by reminding microscopists that precisely similar bodies exist in urine, saliva, mucus, and it may be added in pus. On the other hand, a chemical ex-



amination cannot lead to a satisfactory result, because all the chief principles of blood are met with in other animal fluids, and in addition several vegetable albumenized matters present the same reaction as the albuminous elements of the blood.

Erdmann records a recent case which shows at once the insufficiency of a chemical examination, and the necessity which exists for an extreme reserve in all medico-legal microscopic researches. The only trace of an assassination committed at Leipsic was a brownish stain situated on the spot where the crime had been perpetrated; under the influence of rain this stain had assumed the appearance of coagulated blood. An aqueous solution of this stain furnished a reddish fluid, which gave, with tannin, with ferrocyanide of potassium, and with Millon's solution, the same chemical reaction as the aqueous extract of dried blood. Examined under the microscope, the brown matter was found to contain some corpuscles similar to those of blood. But Erdmann having failed to discover crystals of hæmine, conceived doubts as to the value of the other characters, and repeated with greater care the microscopical examination; he then discovered that the bodies supposed to be blood-globules were the spores of an alga, which has been called the *Porphyridium cruentum* precisely on account of the resemblances of its spores to the globules of the blood.

Erdmann in the course of his subsequent researches has simplified the method of Brücke for obtaining crystals of hæmine, and has reduced it to the following steps: He macerates the suspected stain in water and slowly evaporates the solution; he places this aqueous extract on one of the slips of glass used in microscopic examinations, and adds to it a minute crystal of common salt and a drop of glacial acetic acid; he exposes the slip of glass to a gentle heat over a spirit-lamp and evaporates to dryness; when the glass is cool he adds a drop of acetic acid, and places the whole under a microscope with a magnifying power of 250 diameters. If the stain contained blood, crystals of hæmine will infallibly be seen in the drop of acetic acid; these are rhomboidal plates arranged in groups around a central point; their colour varies according to their thickness from yellow to red; the special character of these crystals is their solubility in caustic potash. Erdmann maintains that by this method he has obtained crystals of hæmine from a stain of blood which could not be seen without a magnifying-glass.—*Gazette Hebdom.* from *Zeitsch. für Analyt. Chemie.*, II. 1862.

82. *The Hæmine Crystals in different Animals.*—Dr. WILBRAND has endeavoured to determine whether hæmine crystals from the blood of different species of animals can be distinguished by any crystallographic peculiarities. The following are the characteristic differences so far as they have yet been determined:—

The crystals from human blood are lamellar-prismatic; that is to say, the crystals are thin, but relatively broad, the length being only from one and a half to three times the breadth. The crystals from the blood of the ox and the mouse are elongated-prismatic, being from six to ten times as long as broad. The blood of the ox and the mouse may, however, be distinguished from one another by the arrangement of the crystals. The first forms the model of a hexagonal axis-cross or parts of it; the latter of a monoklinometric cross or parts thereof. Accordingly, in the blood of the ox we find six-rayed stars formed from three crystals which intersect one another in a plane under sixty degrees. Such stars are not found in the blood of the mouse; but two forms of cross found in it are specific—rectangular crosses formed from two crystals which present their narrow margins; and oblique crosses, the acute angles of which amount to rather more than two-thirds of a right angle. In addition to these kinds of blood, Wilbrand experimented on that of the sheep and the pig, but failed to find characteristic differences. The characters of the hæmine crystals from the blood of man, the ox, and the mouse, serve merely to distinguish them from those from the sheep and the pig.—*Ed. Med. Journ.*, Oct. 1862, from *Vierteljahrsschrift für die praktische Heilkunde*.

83. *Poisoning by Nitrate of Strychnia, Acetate of Morphia, Bitter-Almond Water, and Chloroform.* By Dr. TSCHEPKE.—On the 26th of November, a little before eleven in the evening, Dr. Tschepke was summoned to see E., a druggist's

assistant, who had voluntarily poisoned himself. He was found in bed, pale, the eyes closed, stiff as a corpse. One of those present showed a phial containing nitrate of strychnia, which the young man had employed. Dr. Tschepke took hold of the hand in order to feel the pulse; immediately on this simple contact the body was affected as if by an electric shock; the pulse became scarcely perceptible; the respiration was suspended. At the end of a few minutes the patient opened his eyes, and, in reply to a question, stated that he had taken strychnia. Whilst an emetic, consisting of antimony and ipecacuanha, was being prepared, spontaneous vomiting occurred of a reddish matter, having the smell of bitter almonds. The emetic was administered, and a solution containing three grains of tannin in each dose was prescribed. The emetic produced two copious discharges, after which E. scratched his face and body violently, and tore his hair; then supervened starting, clonic convulsions, tetanic rigidity, opisthotonos, and suspension of the pulse and of the respiration. Touching the arm produced, at first, a fresh attack. The tannic acid and the emetic were given every alternate quarter of an hour. Vomiting and cramps succeeded one another; the same train of symptoms recurred. At the end of an hour the patient was able to speak, and stated that he had first taken strychnia, then acetate of morphia, each of these substances in an ounce of bitter-almond water, and that he had poured on his pillow a certain quantity of chloroform.

Half an hour after midnight the use of the emetic was discontinued, and three grains of tannic acid, with a quarter of a grain of codeine, were given every half hour. Occasional vomiting and cramps recurred until four o'clock in the morning. There was still great anxiety, feebleness, and dryness of the throat; the respiration was short and hurried. To allay his thirst, he was ordered milk of almonds, milk, tea, and finally seltzer water. Urination was painful.

In the morning the patient was sufficiently recovered to narrate what had taken place. At half-past eight o'clock he had taken between eight and ten grains of the nitrate of strychnia in an ounce of bitter-almond water. A little later he swallowed an additional dose of twelve grains of strychnia. Feeling nothing particular, he took at nine o'clock ten grains of acetate of morphia dissolved in an ounce of bitter-almond water, and then lay down in bed. Ten minutes later he recollected that he had some chloroform; he poured some of it on his pillow to hasten his death. It appears that he was insensible for an instant, and then felt in the nose and the limbs an intolerable itching. Feeling no effect from the poison, he wished to get up to look at his watch, but was unable to do so. He remained in a state of partial insensibility till the arrival of a fellow-assistant at about a quarter to eleven. He heard him enter; and as the latter was leaving the room to get assistance, he was seized with violent cramp, with cessation of the respiration, but without pain. He then lost consciousness, but only for a short time; and when he came to himself, had another attack of convulsions. At this moment the physician entered, and made the observations already noted. Two days afterwards no trace of the poisoning remained.

The various symptoms in this remarkable case may be referred to the different poisons. To the strychnia must be referred the cramps, the violent movements of the body on the slightest touch, and the phenomena of asphyxia. To the morphia belongs the itching of the nose, of the limbs, and, later, of the whole body. The bitter-almond water and the chloroform appear to have produced no special effect.

We may well be surprised that such large doses of strychnia did not cause death; but this is to be accounted for by the following circumstances: The young man, before poisoning himself, had partaken freely of a sort of soup made with flour and a species of cranberries. These latter contain tannin, an agent which neutralizes strychnia; and the farinaceous matters, by enveloping the poison, had prevented its absorption.

On the other hand, opium has been found to be an antidote to strychnia; so that the mixture of poisons which the poor creature had taken to hasten his death had had precisely the opposite effect. It is right to add that the emetics, continued without interruption during several hours, no doubt had a considerable effect in bringing about this fortunate result.—*Ed. Med. Journ.*, Oct. 1862, from *Gaz. Méd. de Paris* and *Deutsche Klinik*.



84. *Poisoning by Sulphuric Acid.* By ANTONIO COZZI.—This interesting monograph is founded upon the study of twelve cases of poisoning by sulphuric acid observed by the author at the Hospital of Santa-Maria-Nuova, at Florence, between the month of February, 1852, and January, 1861. With one exception, all the poisonings were the result of attempts at suicide. The analysis of these observations has led Cozzi to the following conclusions regarding the objective and subjective symptoms which follow the ingestion of the poison:—

1. The fluids discharged by vomiting are generally as black as ink; in some cases they have been sanguinolent.

2. It sometimes happens that the phenomena of spasm and irritation, determined by the caustic substance, predominate at first in the situation of the pharynx, and that epigastric pain only comes on later; under these circumstances death occurs suddenly, before anything causes the physician to suspect its imminence.

3. Entering the larynx and bronchi, the sulphuric acid may develop a fatal inflammation, and determine grave disorders in the organ of voice. The penetration of the acid into the air-passages is due to the instantaneous impression which it produces upon the tongue; the spasmodic contraction of the pharynx prevents deglutition, at the same moment an access of cough occurs, and in the succeeding inspirations the liquid falls into the trachea and bronchi, and may even enter the lung.

4. When the degree of concentration and the dose of acid swallowed are sufficient, an immediate perforation of the stomach may take place; in this vomiting and diarrhoea are absent. In this case also the swallowing of liquids increases the pain; the pulse becomes thready, the prostration is complete, the limbs are covered with a cold sweat, and death occurs in a few hours, the patient retaining consciousness to the last.

5. If the acid is weak and much diluted, the general symptoms are at first less severe, the local accidents predominate, but may themselves present a slight remission; but an inflammatory reaction soon sets in which carries off the patient. In other cases, nervous symptoms and grave disorders of the assimilation manifest themselves; the patient cannot regain strength, and after prolonged suffering he expires, either from a chronic gastro-enteritis, from ulceration of the stomach, or from stricture of the œsophagus or of some other part of the digestive tube.

6. Sulphate of indigo probably possesses toxic properties as intense as those of pure sulphuric acid.—*Gazette Hebdomadaire from La Sperimentale.*

85. *Poisoning by Bitter Almonds, with Iodide of Iron.*—M. TOSCANI administered, as a tonic, the syrup of iodide of iron to a child about six years old, with great success. While under this treatment, in opposition to repeated warnings, a person gave to this child two bon-bons containing essence of bitter almonds. One hour afterwards the mother gave a teaspoonful of the syrup of the iodide. At the end of another hour, intense cardialgia and faintness succeeded each other at short intervals for three hours. In a moment of rest a little soup was given which brought on vomiting, with relief. Recovery took place in five hours. The writer of the above case remarks, that all preparations containing hydrocyanic acid should be taken with great care whenever salts of iron or mercury are being administered, as they form with these poisonous compounds of extreme activity. Hence, mixtures containing calomel and bitter almonds are peculiarly dangerous.—*B. and F. Med.-Chir. Rev.*, Oct. 1862, from *Bullet. delle Sci. Med. di Bologna*, March, 1862.

86. *Case of Rape during Sleep.*—The following case, tried at Dumfries Court, on the 26th Sept., 1862, before the Hon. Lords Cowan and Neaves, throws light upon a vexed question of medical jurisprudence, whether it be possible to commit rape upon a woman while asleep?

The prisoner, William M'Ewan or Palmer, was placed at the bar charged with the crime of wickedly and feloniously having carnal knowledge of a woman when asleep, and without her consent, by a man not her husband.

The prisoner plead not guilty.



The following is the material part of the evidence :—

Mrs. M. I have been married sixteen years, and have three of a family. My husband keeps a hotel, of which he is also proprietor. My husband and I, and two of our children, sleep in a private room communicating by one door with the kitchen, and by another with the bar. One of the children sleeps in my own bed, and the other in a small folding-down bed. This small bed is near the fireplace, where there is a gas bracket. The prisoner has been eight or nine years in our service as horsekeeper and ostler—he did not sleep in the house, but slept out.

On the night of 2d May last, a policeman drove to the door with a prisoner about half past ten or eleven o'clock. I was told that he had gone to the prison with the prisoner and was coming back. The servants were all to bed; they sleep up stairs. It was arranged that I was to wait up for the constable. I went into my own room, and lay down upon the little bed near the fireplace. I had been up all night on the previous night, and had been much fatigued during the week before. My husband was at this time sitting at the fire reading the papers. He was to go to bed after he was done with the papers. I fell asleep, and was very sound asleep. I lay down with all my clothes on. I was dressed much the same as usual; lay down on my left side. The door was on my right. The little bed was at the other end of the room from the door into the kitchen. I felt the pressure of a man, and thinking it was my husband, I raised myself up. It was that blackguard—I mean the prisoner. He was lying upon me, and when I rose up he drew himself away. My clothes I found folded up, and the lower part of my person was exposed. It was his weight that awoke me. He withdrew himself when I awoke. I was then lying more upon my back. When I awoke, his body was in contact with my person. His private member was in my private parts. I felt him withdraw it from them. In doing so, I felt a discharge from him in my person, and all about on my clothes. The gas was at this time very low; when I lay down it was high. There was a complete mess on my clothes. I immediately called out for him to go away for a dirty, filthy, blackguard. As he went away, he was buttoning up the front part of his trousers. The prisoner said as he went away, to say nothing about it; the policeman is waiting for his money—to cash this account for him. The police often, when they came late at night, got payment from me of their accounts, and I got payment afterwards from the authorities. I rose to my feet in a moment; prisoner went sideways towards the kitchen. My husband awoke. I still cried out to prisoner to go away. I told my husband about prisoner. He got up and had him taken away. I was greatly agitated. Husband got the constable to take prisoner in charge. The prisoner said, I've done it, and I'm sorry for it—he was then in the kitchen. My husband went with the constable to take prisoner to prison. When he came back I told him everything. This was a little after twelve o'clock, about a half or three-quarters of an hour after the prisoner did it. There was light enough to let me see prisoner. There is no doubt as to the man. The prisoner never before came into my room without knocking. I was on no terms of intimacy or particular acquaintance with him. The prisoner was rough and coarse in his language, but a good enough servant otherwise. He did all this without encouragement from me at any time, and entirely without my consent. When I went into my room to lie down, the prisoner was in the kitchen. I suffered from the effects of this for a long time. I was much distressed, and have been kept from sleeping by it. I might have slept for half or three-quarters of an hour before it was done. When I lay down, my dress was quite in its proper state.

The husband's testimony corroborated his wife's, and he stated that he was quite sure his wife was sound asleep when he went to bed.

In his declaration, the prisoner admitted having gone into the room, and having raised Mrs. M.'s petticoats, and placed his hand upon her person, but denied anything further.

The jury unanimously found the prisoner guilty as libelled, and he received sentence of ten years' penal servitude.—Condensed from *Edinburgh Med. Journ.*, Dec. 1862.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Abdominal Carcinoma resulting in Artificial Anus in the Upper Third of the Ileum.* By D. LEASURE, M. D., of New Castle, Pa.—On the 18th of December, 1857, I was called to I. W., bricklayer, aged 43. He informed me that his health had been declining for three or four years; that during a sojourn at the mines in California, six years ago, he was greatly exposed to vicissitudes of weather, with little or no protection, and that a violent sickness ensued, from which he never entirely recovered. Since his return, four years since, he has been troubled with obscure dull pains in his abdomen, with a sense of weight and dragging in his back, which have gone on increasing in intensity, and within the last year sharp lancinating pains have been added to his sufferings, but there has been no diminution of the dull dragging pain, which he describes “as rather a sense of suffering from some internal weight producing inward weariness, than a real pain.” His bowels have been obstinately costive, though cathartics would always give temporary relief, to be followed with the same state of constipation as soon as they ceased to operate. His appetite is not good, though he eats with a sufficient relish, and there is no disposition to intolerance of food, nor any nausea. His kidneys are not very active, and there is a good deal of sediment in the urine, which, on examination under the microscope, proves to consist largely of the triple phosphate of lime, and the phosphate of ammonia, with a debris of broken blood globules and disorganized tissues, the precise character of which I am not able to determine, though from the presence of imperfect sections of tubes I infer that it is probably from a kidney, at least in part. He informed me that some ten months since he observed that there was a tumour in his left side, which has rapidly increased in size. On examination, I found a tumour distinctly lobulated and very firm, occupying about one-third of the left sides of the umbilical and hypogastric, and nearly all of the left lumbar and iliac regions. The tumour seemed to have its greatest prominence, about the intersecting point of the dividing lines of these regions, where it was very prominent and quite hard, as if one of the lobes had been thrust forward at that point. There was no tenderness on pressure, and the tumour seemed to be firmly attached, so as to admit of but little motion. The general appearance of the patient was that of a man labouring under a general cachexia, but with no distinct well marked characteristics to determine precisely the nature of the primary mischief. Was this merely a case of general mesenteric disease, with great enlargement of the mesenteric glands, attended possibly by impacted colon, or was it carcinoma? I gave the patient the benefit of the more favourable diagnosis, and completely evacuated the canal by free laxatives, and very copious enemata, with the effect of bringing away about half a gallon of hardened and apparently old scybalæ. The tumour, however, was but little diminished in size, and its outlines could be more distinctly made out. I put him on the use of an iodo-ferruginous medication with no benefit at all, and the case seeming to progress rapidly, with an evident tendency on the part of the tumour to point, as though pushing its way to the surface, I abandoned all treatment, and left the case to nature for some weeks.



About the first of February succeeding, the lancinating pains became insupportable, especially at night, and I was obliged to put him on the use of opiates, which were finally pushed to the extent of an ounce of McMunn's elixir per diem. The tumour still pressed towards the surface, the skin over it became inflamed, and on the 26th of February, finding that there was distinct fluctuation, and an evident disposition on the part of the skin to form a large slough, I passed a small trocar obliquely into the soft portion of the tumour, so as to merely pass through the skin and cellular tissue into the cavity of the abscess, without penetrating to the interior of the abdomen. On withdrawing the trocar, about four tablespoonfuls of pus, and a strong jet of gas escaped through the canula. The canula was withdrawn, and a bread and water poultice laid over the part, and the puncture closed over in two days without any further discharge.

I examined the pus under the microscope, as did also, at my request, Dr. S. M. Hamilton, but we detected nothing that might not have been found in an ordinary abscess. On the 10th of March the tumour again pointed, and on the 12th it opened spontaneously at the seat of the old puncture, and after discharging pus for three or four days, the contents of the bowel passed through, and as substances eaten only a short time before passed out at the opening undigested, we had the unpalatable truth forced upon us, that we had to deal with an artificial anus high up in the ilium. From this period, he had no discharge at all from the anus proper, or lower bowel, until at the end of the fifth week he had a small discharge, of which he partially relieved himself with his fingers, but on throwing up a syringe full of warm soap suds, the bowel was emptied without much trouble, and then about every third or fourth day there would be a similar discharge, but it appeared to consist almost entirely, if not altogether, of the secretions of the bowel itself. From this time, also, till the 30th of April, the patient lingered in great suffering, though the tumour did not seem to develop itself anteriorly, and on that day I again punctured the integuments low down in the left iliac region, over a large sac of pus, where it was evident a slough was about to separate unless I did, and after the discharge of about half a pint of pus the contents of the bowel were forcibly ejected, and another artificial anus was established. At this time he was extremely emaciated and harassed with violent paroxysms of coughing. Circulation and innervation have been but little disturbed up to this time, but now he was evidently sinking, and the pulse run up to about one hundred. His intelligence was not disturbed even by his large opiates up to within a few hours of his death, which took place on the 4th of May.

*Autopsy* eighteen hours after death in the presence of Drs. Cossit, Cowden, White, and Peebles. On making the necessary incisions, and deflecting the skin over the left iliac region, a large cavity was exposed partly filled with pus, and the debris of broken-down cellular tissue. Two small apertures opened from this into the intestine, through which the contents of the bowel escaped, on pressure of the abdomen. I now undertook to separate the abdominal fascia from the muscles, but found it almost impossible; for so completely were the parts blended in one common mass, as to form an apparently new tissue, as into this mass the peritoneum had also been forced to enter, and I was obliged to deflect all the abdominal coverings together, in which I could only succeed with much difficulty, for the convolutions of the intestines were firmly agglutinated to each other, and also to the peritoneum, and it was in these extensive adhesions that the two apertures existed communicating between the inner surface of the bowel and the surface of the skin constituting the artificial ani. Having entirely ex-



posed the cavity of the abdomen, it was found to contain several pints of a light coloured whey like fluid: and a large and firm tumour occupying the entire left side of the abdomen in its whole length, and including in itself the duodenum, jejunum, and about one-third of the ileum, with the transverse and descending arches of the colon, and their attached mesentery. The substance of the tumour, aside from the natural parts contained in it, was an immense lobulated scirrhus. On carefully dissecting the tumour, it was found that while the scirrhus enveloped completely the portions of the bowel passing through its substance, it did not diminish or sensibly encroach upon the natural dimensions or calibre of the gut, but so encased it, as to render any considerable amount of peristaltic motion next to impossible; this portion of the intestine was quite full of the ordinary half digested ingesta above the artificial anus, and below it contained only the products of elimination and some gas. The lower two-thirds of the ileum, the caput cæcum, and ascending arch of the colon were not in any way implicated.

The substance of the tumour presented carcinoma in all its stages of scirrhus and cephaloma. The scirrhus portions varied from a series of light straw-coloured tumours, of various sizes, to the firm, hard, gray, and gristly tumours as large as goose eggs. Many parts of the encephaloid portions presented the appearance of broken-down and crumbled cheese, and these seemed to be enlarged mesenteric glands, and formed the principal distinct lobes of the tumour. On examining carefully the seat of the openings in the ileum, I found that one of these lobes had softened, and taken on ulcerative action, which extended itself in all directions equally, and a convolution of the ileum being in its way, it was opened on its anterior surface, and the contents were admitted into the cavity filled with matter from the softened mass. The extensive adhesions and agglutinations of the parts to the anterior wall of the abdomen preventing any escape into the peritoneal cavity, the accumulating matter was thus directed to the surface where it finally escaped. The right kidney seemed healthy enough, but the left was so surrounded by, and pressed upon, the dense substance that it was reduced in size fully one-half, but did not appear to be in the least affected with the invasion of cancerous deposit. No part of the intestinal canal presented any traces of disease, save where the opening occurred in the ileum, and there was but one opening in the ileum, the size of a dime, and both the openings through the integuments communicated with it, the pus having dissected its way under the fascia of the abdomen, and pointed at two places. The stomach was entirely free from disease, as were also the liver, spleen, and pancreas. But it was in the mesentery that the disease seemed to have had its chief seat and development.

The whole of the mesentery, connected with that portion of the bowel implicated, was a mass of carcinomatous matter, but the portion of mesentery attached to the healthy intestine was itself healthy. In the diseased portion of the mesentery, the deposit or development of the cancerous matter was chiefly between the folds of the peritoneum, which were distended, or rather separated from each other, until the peritoneum was thrust away from the posterior wall of the abdomen over the spine and on its left side, and also deflected from the intestines themselves, until only about one-third, and that of course the anterior surface of the bowel, had any peritoneal covering at all. A great number of tumours were found along the whole course of the spine, where the peritoneum had been pushed forward by their growth.

The surface of the peritoneum was entirely free from any deposit, and where the main body of the tumour was in contact with the anterior wall

of the abdomen, the peritoneum seemed merged in a common blending of all the tissues, and, perhaps, in some places, lost by absorption or ulceration, but not to any appreciable extent the seat of deposit.

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*Death during Convalescence in Typhoid Fever from over-eating.* By JAS. L. ORD, M. D., of Santa Barbara, California.

CASE 1.—A young man aged 20, a native Californian, had a severe attack of typhoid fever of about six weeks' duration. By giving several times a day large doses of quinia, with calomel gr. x, and tart. antim. gr. j, every third or fourth day, he recovered so far as to be able to walk about the house; although very weak, still taking tonics. Charged his attendants to give him a small allowance of digestible food with a glass of wine at a meal, four times daily, which was strictly obeyed for a short time. One day he complained to his mother of not having enough to eat, and begged her to give him as much as he could eat at one time. She very naturally assented, and cooked for him a large dish of dried codfish and potatoes mixed with eggs and fried in fat, of which he ate very plentifully. This was in the afternoon. Next morning I was sent for in a great hurry, and was informed by the messenger that my patient was dying—that he had been vomiting for several hours, and that if I did not hurry he would be dead before I reached him. Sure enough, when I arrived I found him in *articulo mortis*. No post-mortem examination was made.

CASE 2.—A young man aged 25, a native Californian, was sick several weeks with typhoid fever. Got so well that he walked about the house, and sometimes would visit the nearest neighbours, yet quite feeble and taking tonics. He was told to restrain himself from eating too much at a time, and to eat such food as he could digest easily. His appetite was ravenous, and he often complained of not eating sufficient to satisfy his hunger. One afternoon he visited a friend near by, and was induced to remain for supper. His host told him, very imprudently, not to starve himself, but to eat as much as he wanted; that he would soon be well, and never mind what the doctor said. He did eat plentifully of the supper, such as it was—roast beef and fried beans. The consequence was that he brought on enteritis, and in forty-eight hours he was a corpse.

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#### DOMESTIC SUMMARY.

*Ligation of the Subclavian Artery.*—Dr. H. N. BENNETT relates (*Am. Med. Times*, Dec. 27, 1862) the following. A man 20 years of age, while playing with a lad, was accidentally stabbed with a long narrow knife, the point of which entered upon the posterior and outer face of the left arm, a short distance above the insertion of the deltoid, passing directly upwards and inwards, a distance of at least three inches, the edge of the knife being turned towards and running close upon the bone. My friend, Dr. James Baldwin, of Stratford, was immediately called, as the hemorrhage was profuse. Upon his arrival the patient was already faint from loss of blood, and it was not difficult at this time to arrest the bleeding. A roller was very judiciously applied the whole length of the limb, and a firm compress over the wound. This precaution was taken as the blood appeared to be arterial, and Dr. Baldwin is quite positive that at this time there was no pulsation in the radial artery, leading him to suspect that this vessel was wounded. The hemorrhage remained quiescent several days, when it again broke out with renewed force, and unmistakably arterial. At this stage of the case I first saw the patient. The whole limb was now swollen, the arm being to a considerable extent infiltrated with blood, while the

forearm and hand were œdematous. I proposed, before resorting to operative procedures, to try the application of persulphate of iron, which was approved by the attending physician, and the wound was filled with this powerful styptic—compression being continued as before. The hemorrhage has now another period of quiescence, and the swelling of the limb materially lessened, but upon the eighth day after the application of the styptic, bleeding again commenced, with still greater violence, and was with much difficulty arrested by compression. The limb immediately swelled again, and the œdema of the forearm and hand was greater than before. The patient was now suffering the constitutional effects of loss of blood—his face was blanched, his appetite poor, and his pulse frequent and feeble. I believed it high time to secure the patient from further hemorrhage, if possible, and with this view proposed to ligate the subclavian artery. An attempt to tie the wounded vessel by following the incision (only three-fourths of an inch in width), would involve the muscles of the arm to an unwarrantable extent, and perhaps also important nerves. It was quite uncertain as to what artery had been severed or *wounded*, and the anastomoses about the shoulder being quite free, I believed the ligation of the subclavian to be the most judicious method of treatment. I was not aware, either theoretically or *practically*, that the ligation of arteries at a distance from the seat of the wound, sometimes fails, the hemorrhage returning after a longer or shorter period; but this fact seemed to me to indicate the tying of the artery at that point which would most effectually restrain the circulation.

I proceeded to the operation (Oct. 12, 1862), assisted by Dr. Baldwin. No details are necessary, as the vessel was tied in the usual manner and place, just without the scaleni muscles. The infiltration of blood and the œdema disappeared almost entirely within forty-eight hours, and the temperature of the limb was easily maintained by an envelope of flannel. The ligature came off on the thirteenth day, the operative incision being nearly healed. The original wound also began to cicatrize, and was firmly closed at the end of three weeks after the operation. No pulsation is yet visible in the radial or ulnar arteries, although the man is in good health, and pursuing his ordinary avocation.

*Vinegar as an Anti-Scorbutic.*—Dr. ALEX. McBRIDE, Surgeon 40th Reg. O. V. I., states (*Cincinnati Lancet and Observer*, July, 1862), that he has employed vinegar with great benefit in scurvy.

His field of duty was chiefly with the 40th Reg. O. V. I. "In January, and the first days of February," he says, "the regiment was encamped at Camp Buell; a muddier, wetter, and gloomier place than which probably never existed. When I found that to procure potatoes, cabbage, citric acid, etc., was impossible, while the exciting causes and the primary symptoms of scorbutus were rampant, the prospect before me was *horrible* for the suffering and death which must follow."

In this emergency it occurred to him to use vinegar, of which there was an abundance and of good quality in the commissary department. He "immediately recommended and urged its free and abundant use, and found that it was well relished by every man, both those on the sick list and those on duty. The men were surprised to find themselves so fond of vinegar. I made free use of it, diluted with water, as a common drink in the hospital in *all cases of disease* where the patient had a relish for it, as well in diarrhœa and dysentery as in common continued fever and debility. The constant thirst which had been such a harassing difficulty, disappeared, and dry and parched mouths were by no means so common afterwards. The diarrhœa so difficult to control was improved in every case. The indication in every case for giving the vinegar, was the *relish* for it. Thus had I a remedy, and from this time forth the diathesis changed, although there was no other change in the quality of the rations.

"About a month later, it became my duty to prescribe in other regiments of the brigade, whose circumstances had been identical with those of the fortieth, except the vinegar. The difference of their health was striking; the fortieth had about fifty per cent. more men fit for duty than either of the other regiments. I procured what vegetables I could, but the quantity was insignificant most of the time."



It makes little difference how the vinegar is got into the stomach, Dr. McB. says, "whether as a drink diluted with water, with or without sugar, or mixed with various articles of food. I directed our men to add it to their bean-soup and to their boiled hominy; also, to sop their bread in it, sweetened or not, according to taste or notion. Sugar is not injurious, but, I think, rather beneficial to its effect. A very nice pie can be made by soaking broken bits of cracker in vinegar, then adding sugar and spices, precisely as in making apple pie. This is as easy made as apple pie, and eaten in the dark would pass anywhere for a fruit pie.

"Another form: I sweeten good vinegar to taste; then stir in flour or common starch in small quantity, and bake as a custard or pumpkin pie."

[No fact in therapeutics is better established than the anti-scorbutic properties of vinegar, and the article is always supplied to ships on long voyages with that view; nevertheless the observations of Dr. McB. are useful as calling attention to the article especially in the scorbutic condition into which armies in the field are apt to fall where proper hygienic precautions are not observed.]

*Oakum as a Substitute for Lint in Gunshot and other Suppurating Wounds.*  
—In our previous No. (pp. 566-67) we noticed the commendatory remarks of Dr. Sayre on the use of oakum as a substitute for lint, and the grounds for this preference. Our experienced friend, Dr. W. S. W. RUSCHENBERGER, dissents from the conclusions of Dr. S., and, in a recent No. (Oct. 9, 1862) of the *Boston Med. and Surg. Journal*, he gives some good reasons for his dissent.

"In order," he says, "to obtain an idea of the comparative absorbent power or capillary force of oakum, cotton, lint, and tow, small parcels of these articles, of ascertained weight and dimensions, were gently placed on the surface of water in a basin, and carefully weighed again after removal. The weight of water absorbed by each, thus ascertained, is stated in the following table:—

	Weight.	Dimensions.	Time in contact with water.	Weight of water absorbed.
Cotton (wool) . . . .	40 grs.	3 in. diam.	1 hour 10 min.	8 grs. = 1.5
Oakum . . . . .	"	2½ " "	" " "	10 " = ½
Tow (from hemp) . .	"	2½ " "	" " "	250 " = 6.25 times
Coarse lint (shoddy) .	"	2½ " "	1 minute	280 " = 7 " "
Scraped lint . . . .	"	2½ " "	Instantly	298 " = 7.45 "
Patent lint . . . .	"	1¾ by 3 in.	4 minutes	299 " = 7.47 "

"Forty grains of cotton submerged and slightly squeezed under water for a few seconds, was found to retain, without dripping, 270 grains; and an equal weight of oakum treated in the same manner, only 94 grains of water. The oakum retained little more than twice its weight, and the cotton nearly seven times its weight of water.

"The inference from these experiments is that the capillary force of patent lint is nearly thirty times, and that of tow twenty-five times, greater than oakum; and the capillary force of oakum is only one-fifth greater than that of cotton. Oakum absorbed one-fourth, and cotton one-fifth, of its weight; but tow 6.25 times, coarse lint 7 times, scraped lint 7.45 times, and patent lint 7.47 times, its weight of water.

"If the property of capillarity alone is to determine the choice of tissue or substance for covering suppurating wounds, any description of lint or tow is to be preferred to oakum.

"Tow has been long employed as an outside dressing or recipient of profuse discharges; and also as a swab in cleansing offensive suppurating wounds, where sponge was not sufficiently abundant to be expended in this way. The objection to tow is, that there are apt to be sharp or hard spiculae adhering amongst its fibres, which give pain when brought against a sensitive surface; but this objection may be obviated by carefully selecting and carding the substance. A better substitute for sponge for cleansing purposes in surgery is cotton wool, which, saturated with soapsuds, or simply with tepid water, and held in a dressing for-

ceps, forms an admirably soft application that may be used where the finest sponge would be found by the patient rough and harsh. Indeed, considerations of cleanliness and of avoiding the diffusion of morbid matters from patient to patient, suggest that sponge used once as a detergent implement should not be used in the case of any other individual, and not too often on the same person. Cotton or tow forms a detergent implement so cheap that it may be renewed at every dressing, and ought to be substituted for sponge, without any reference to cost, for cleansing purposes.

"It is said that cotton or lint placed over a suppurating wound serves to *prevent* the escape of pus, and that oakum should be substituted. But it seems that oakum as well as lint may block the way and hinder the flow of the escaping liquids, if not removed when saturated. Then why should a copiously discharging wound be enveloped in any capillary material? Why not permit the discharge to flow without impediment of any kind? Any contrivance which would keep the wounded part at a normal temperature, whether in the form of oiled silk, or other tissue not readily permeated by moisture, or in shape of a simple veil or shield from flies in hot weather, might prove more salutary than the effects of a bunch or pledget of wiry oakum secured over it by bandage or otherwise.

"Supposing that oakum possesses all the qualities claimed for it in the instances specified, it cannot be regarded as a substitute for patent lint, because there is often necessity for just such a pliant tissue to serve as the vehicle in the application of ointments to morbid surfaces—such as blisters, for example.

"Substitutes are almost always defective expedients. Whether they are adopted from parsimony, poverty, or other reason, they rarely satisfy the requirements they are employed to meet. The workman who uses implements in all respects adapted to his vocation produces more perfect results than he who labours with a paucity of tools, and hence, driven to expedients, is compelled to require from his awl the work of a gimlet.

"Oakum is, doubtless, applicable as a substitute to some ends. It may answer as an external dressing, a mere recipient of liquid discharges; but for such purposes, as it costs much more and has less capillarity, it is a poor substitute for tow. Its application to the uses to which patent lint is especially adapted could be suggested only where no soft tissue is procurable. Canton flannel would answer the place of patent lint better than oakum; but, comparing their adaptability to the object in view, the propriety of substituting Canton flannel, at thirty-five cents the square yard, for patent lint, while this is procurable at forty cents, does not commend itself to notice."

*Croup—Tracheotomy—Fatal Result.*—Dr. JACOB presented to the New York Pathological Society (Sept. 10, 1862) the respiratory organs of a child two years of age, who died ten o'clock of the night before of croup. He related the following history of the case: I first saw the child in consultation last Friday morning. He had been suffering for about ten or twelve days from nasal and laryngeal catarrh, and when the attending physician was called, twenty-four hours before I saw the child, there were well established symptoms of croup. Not only was there more or less occlusion of the larynx, but also diphtheritic membranes covering the tonsils and the adjoining parts of the pharynx. The physician made use of the usual remedies, but the symptoms grew more and more grave every hour, and when I was summoned suffocation seemed so imminent that I thought it best to resort to tracheotomy at once. The operation was performed in the usual way, with the exception that the incision into the trachea was made through the thyroid body. The hemorrhage which followed this procedure was very much less than I expected it would be.

The operation under the circumstances was considered justifiable, inasmuch as I could not make out there was any pneumonia present. About twenty minutes after the operation the child breathed pretty well, and pulse ranged from 135 to 140 per minute. The pulse increased in frequency until the afternoon when it was about 150. The child then took a little of Horwood's tinct. of veratrum viride, a drop every two hours, and the following morning appeared evidently better, there being no positive symptoms of bronchitis present. During



that afternoon there was a sudden collapse. The use of stimulants and quinine soon reduced the pulse from 190 to its former frequency, and gave us some hope for a recovery. On the morning of the third day, however, symptoms of suffocation began to show themselves, and the child would throw out from time to time hard shreds of mucous membrane with a temporary relief of the symptoms. The percussion sound was normal and clear posteriorly, but somewhat duller than usual anteriorly. The symptoms of suffocation gradually grew more and more manifest, and the child died last evening in about the same condition as he would have died from the first attack of croup. I have to state that one of the attempts to cure consisted in introducing a pretty strong solution of nitrate of silver. This was done day before yesterday at intervals of thirty-six and twelve hours before death. After the first attempt the child's breathing seemed to be less embarrassed, especially after some of the shreds of membrane were torn out by the feather containing the solution.

A portion of the larynx, pharynx, and trachea were then exhibited. Portions of the tonsils and the whole larynx were covered with pseudo-membranes, which did not show any disposition to separate. The wound made by the operation was so covered by this membrane above and below that the process of healing had progressed very slowly. The evidences of tracheitis were very well marked. The membranous shreds could be traced down as far as the bifurcation of the bronchial tubes. The lungs were healthy, with the exception that on the left side there were pleuritic adhesions and several marks of pulmonary apoplexy.—*Am. Med. Times*, Dec. 20, 1862.

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*Black Calculus from the Kidney.*—Dr. WHITE read before the Boston Society for Medical Improvement (Sept. 22) the following report of an analysis of a black calculus which was shown, lying in the kidney, by Dr. J. Wyman, at a former meeting. Shape, obtuse almond. Weight, 40 grains. Length, 10 lines. Width, 6 lines. Thickness, 4 lines.

Its surface is almost wholly covered with well-marked, conical papillæ and crystalline projections, and is of an intensely black colour, with the exception of two small, deltoid-shaped portions. These are of a yellowish-white colour, and are situated upon one of the flat surfaces, their acute angles nearly meeting in the centre, and forming a depressed girdle, by which constriction the stone was tightly held within the sac, from which it only half projected, and was with difficulty removed. The black substance is hard, shiny in places, and not easily detached. It is deposited in a uniform layer, nowhere exceeding one-third of a line in thickness.

Portions of this matter, examined by the microscope, were found to be so deeply coloured as to possess no transparency. Treated with concentrated *acetic* and *sulphuric* acids they remained entirely unchanged. *Hydrochloric* acid appeared to have no other effect upon them than to extract a little oxalate of lime, which forms the principal part of the substratum, upon which the colouring matter rests. In *alcohol* and *ammonia* alike unaffected. Boiled with a strong solution of *potash*, the liquid assumed a brown colour, which on cooling deposited an amorphous, dark-coloured matter, and became colourless again. The fragments thus treated were changed to a deep yellowish-brown, and exhibited a concentric, lamellated structure, some of the layers representing circles of small diameter. *Nitric acid*, concentrated, produced a brisk effervescence, and very gradually destroyed the black colouring matter, leaving behind an orange-tinted, uniform tissue, of the original shape and size. After spontaneous evaporation various crystalline forms were observed, some of which were of a yellow colour, but in too small quantity to admit a satisfactory examination. A careful analysis was made of as much of the black matter as it was thought well to remove, for iron, but the most delicate tests failed to discover its presence.

What, then, is this peculiar substance? It might at first be taken for hæmatine or some of its modifications, perhaps melanine; but all the blood pigments, as is well known, contain iron, and not a trace of this metal was discoverable in the portion examined, nor do the results of the above tests at all agree with the ordinary reactions of such substances. It would be a very interesting point, moreover, to determine whether the patient ever was affected with hæmaturia,



and even if he had been, it seems impossible that so black a pigment could be formed from the coagulation of blood. Whether we are dealing with simple colouring matter, accidentally mixed with some fibrinous or albuminoid substance, which forms the chief proportion of the layer, as shown by the experiments given, or whether the two are *one* unknown body, it is impossible to decide with the small amount of material at command. The latter, however, seems by far the more probable, for I have never seen, nor heard of, a similar substance of any colour as a constituent of a urinary calculus.

If, then, we give up the blood as the origin of its formation, can we turn to the urine more hopefully for a solution? I believe not, if we limit its resources to the production of the colouring matters already known, and as exhibited in normal or abnormal conditions; for it has no resemblance to urophæin, uroxanthin, or uroerythrin. Moreover, the darkest known pigments the urine is capable of producing, are those imparted to crystals of uric acid, and those which colour certain oxalate of lime calculi; but neither of them even approach in intensity the unique specimen now before us. The results of our analysis, therefore, are negative only, and with such we must rest satisfied, for perhaps nothing more definite would result from the employment and destruction of the entire specimen.

Coating the surfaces of the triangular facets, which were protected from the deposition of pigment by contact with the lips of the sac, is a layer of yellowish-white material, composed chiefly of organic matter. By the microscope, large masses of round cells are seen, filled with a fluid, colourless fat, and encrusted with *carbonate of lime*. On the addition of any fluid, the cell walls burst, and allow the fat in large quantities to float away. When treated with acid, thin, membranous flakes are observed, which, with the aggregation of fat cells, are undoubtedly portions of the kidney or cyst, which had undergone fatty degeneration. From the same portions, *oxalate of lime* was also extracted.

On boring into the centre of the calculus, from this point, its interior, the great body of the stone, in fact, was found to be of a hard, gritty nature, and of a grayish-white colour. This was found, on analysis, to consist of large crystals of *oxalate of lime*, resembling, beneath the microscope, angular fragments of silica, together with a small portion of *carbonate of lime*.

To review, then, the calculus is composed of—1st, an outside layer of some unknown black colouring matter; 2d, of portions of metamorphosed animal tissue; 3d, of oxalate and carbonate of lime.—*Boston Med. and Surg. Journ.*, Nov. 6, 1862.

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*Case of Poisoning from the Pollen of the Common Yellow Tiger Lily.*—Dr. JEFFRIES WYMAN read before the Boston Society for Medical Improvement (Oct. 27th) the following report of a case by Dr. R. T. Warren, of Waltham, Mass. :—

"Mrs. B. was making a call at a neighbour's, having with her a little daughter, 4 years old. The child was 'perfectly well,' the mother said, and had been so. It played with another little girl, and did not go out of the room during the call. The little girl came to Mrs. B., requesting her to go and see Fanny, the name of the child. Mrs. B. went, and found Fanny rubbing her nose very violently. Soon there was a profuse discharge of mucus from the nose, coloured yellow. The mother questioned the child, and ascertained that she had reached her hand out of the window, taken an anther from a tiger lily, and passed it into the right nostril. The child pointed out the lily, and the mother found just one anther missing. Mrs. B. was particular in her inquiries, and the child was positive in stating what she had done. Vomiting soon followed the discharge of mucus from the nose. This consisted at first of chyme, having no appearance of undigested food, and was followed by vomiting of mucus, coloured yellow, the same as the discharge from the nose. The child then wanted to go to sleep. The mother took her home, and then sent for me. I saw her at 6 P. M., Wednesday, August 13, about an hour after the anther was passed into the nose. The child appeared sleepy, but was easily roused, and was intelligent. Vomiting of mucus, tinged yellow, occurred while I was present. The yellowness did not seem to be caused by bile. The symptoms did not seem at all alarming. Not aware that the tiger lily possessed any poisonous properties, I felt no anxiety, and

went away, after prescribing remedies, requesting to be called if anything new occurred. I was sent for about 10 P. M., four hours afterwards. Evacuations of the bowels had occurred; at first of natural appearance, then followed discharges coloured yellow, the same as the vomiting and the discharge from the nose, and at last bloody discharges. The vomiting had occurred occasionally, and this at last became bloody. The child was dull, sleepy, and languid. I prescribed astringents, opiates in the form of paregoric, and brandy and water, if the languor should increase. I saw her Thursday morning. A defection, quite bloody, occurred between 1 and 2 o'clock A. M., and after that the defections were checked. She was relieved of the vomiting. The child seemed languid, rather sleepy; no wandering. The eyes had a dull, reddish injection. At 4 P. M., same day, appearance of the child much the same as in the morning. The right nostril was nearly closed; membrane of both nostrils very pale. Some discharge of clear, thin mucus. Friday morning.—The child looked brighter. Same reddish injection of the eyes. No urine had been passed during the last twenty-four hours. Slight feverish symptoms. No delirium. 7 P. M., Friday.—No urine had been passed. Several defections, dark coloured, very offensive. Some fever during the day, slight delirium and startings. Some nausea. Was called to her about 1 o'clock, Saturday morning. Shortly before she had a large, dark-coloured, very offensive discharge, and immediately began to sink. She died a little before 4 o'clock, about fifty-nine hours after passing the anther into the nostril."—*Boston Med. and Surg. Journ.*, Nov. 6, 1862.

*Can Pregnancy follow Defloration in Rape, when force simply is used?*—This question is discussed by Dr. E. S. F. ARNOLD, of Yonkers, in a late No. (Nov. 29th) of the *Am. Med. Times*. He maintains with plausibility that it is "as impossible for a woman to conceive while under the influence of terror, shock, and nervous exhaustion, as it would be for a man to perform the act of intercourse while prostrated by similar agencies.

"As might be supposed, the same influences affect powerfully the uterus during the whole after period of gestation. What is more likely to produce miscarriage than a fright, or any sudden shock to the nervous system? Is it then reasonable to suppose, that while terror, or strong and painful emotions, especially those of a sudden character, will affect the uterus so powerfully as to cause it to lose its contents, that it can be independent of them during coitus; that it shall, in fact, be independent of them at one moment only to become peculiarly sensitive to them from that time forward?

"While then the uterus is admitted to be sufficiently independent of the mere will, it certainly cannot be proved that conception may occur during a first and forcible coitus, by citing cases to show that it may follow the exhibition of narcotics or sedatives; on the contrary, to reach such a case as I have started with at the commencement of this article, we have to show that it may occur under circumstances of an entirely opposite character, viz., those of intense and overwhelming excitement of a painful kind. I can believe that a woman of virtuous impulses may be so overcome by passion excited in resisting a sudden assault, that a vigorous opposition may subside into passive submission, and that impregnation may result, but then she becomes a consenting party in the eye of the law. It is not a rape. I can also readily conceive that, impelled by shame, she may stoutly assert that she had resisted to the extent of her power, and her antecedents and subsequent conduct may lend undue weight to her statements in the absence of positive proof, which it is impossible to obtain. The older writers, then, may not be so far wrong after all, when they assert that pregnancy shows consent (at least where no other means than actual exertion of strength to accomplish the act are used), that is, such consent as would reduce the crime from that of rape in law to a mere assault."

*Rupture of Uterus; Cæsarean Section.*—Dr. L. R. HOLMEAD records (*Chicago Med. Journ.*, Dec. 1862) a case of rupture of the uterus in a fifth labour, all the former ones having been severe and prolonged. Dr. Byford, who was called in, performed the Cæsarean operation and extracted placenta and child, both of which were found in the peritoneal cavity. It is not stated whether the child was living or dead. The patient died seven days after.





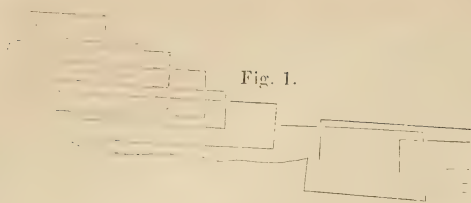


Fig. 1.

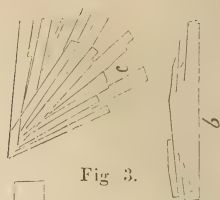


Fig. 3.

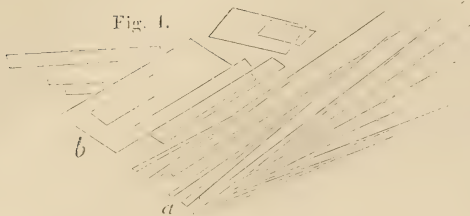


Fig. 4.

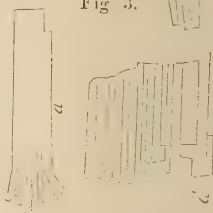


Fig. 2.

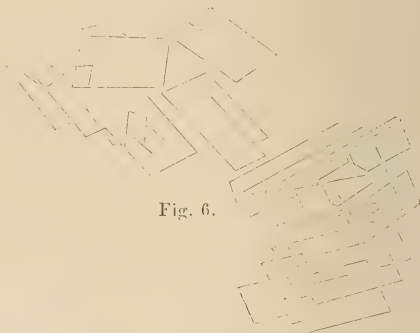


Fig. 6.

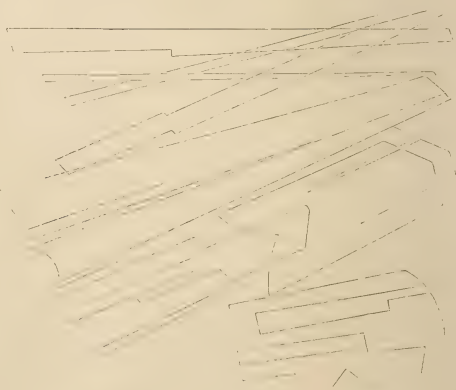


Fig. 7.

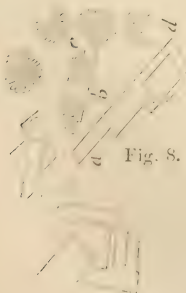


Fig. 8.

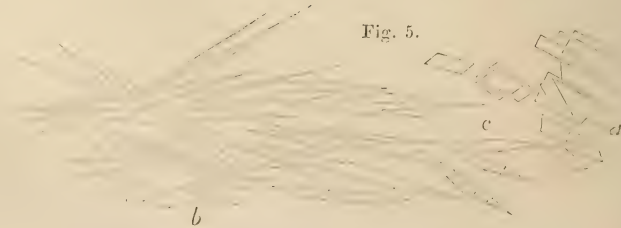


Fig. 5.

Fig. 10.



Fig. 9.

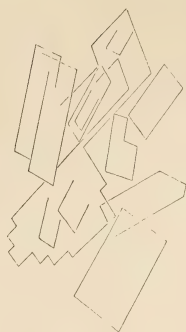


Fig. 11.



Fig. 13.



Fig. 17.

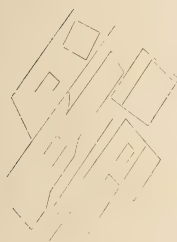


Fig. 12.

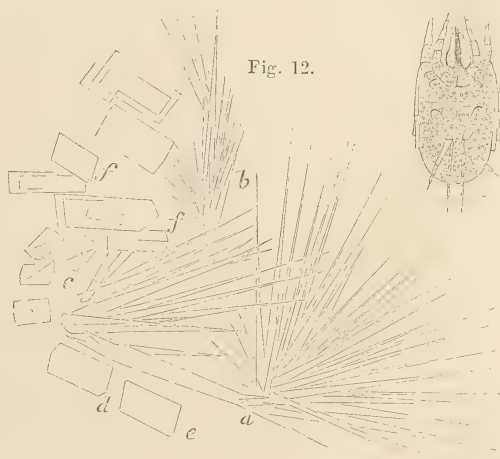


Fig. 14.



Fig. 15.

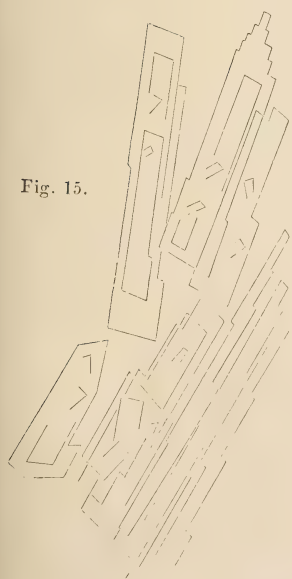


Fig. 16.



Fig. 18.







THE  
AMERICAN JOURNAL  
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FOR APRIL 1863.

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ART. I.—*Experiments connected with the Discovery of Cholesterine and Seroline, as Secretions, in Health, of the Salivary, Tear, Mammary, and Sudorific Glands; of the Testis and Ovary; of the Kidneys in Hepatic Derangements; of Mucous Membranes when congested and inflamed; and in the Fluid of Ascites and that of Spina Bifida.* By J. H. SALISBURY, M. D. (With two plates containing eighteen figures.)

I HAVE read, with much interest, the able paper of Austin Flint, Jr., M. D., of New York, entitled “Experimental Researches into a New Excretory Function of the Liver; consisting in the Removal of Cholesterine from the Blood, and its discharge from the body in the form of Stercorine;” published in the number of this Journal for October last.

Having in similar experiments, in which I have been for some time engaged, determined the presence of cholesterine and seroline (stercorine of Dr. Flint) in other healthy secretions of the human body—in the testis and ova of the human subject—in the ova of some animals—and in morbid collections of fluid in the human body, I here present briefly results which, so far as I know, are new.

The process followed for separating these bodies was, in all essential particulars, similar to that pursued by Dr. Flint, and for which I refer to his able paper.

*Exp. 1. Cholesterine in human ova.*—An unmarried woman, aged about 26, of strong constitution, was found dead in bed. On making a post-mortem examination, the stomach was found highly inflamed and ruptured. A gravid uterus was found, from which a foetus, about three months gone, had recently been expelled. Near the body were found two bottles, one containing chloroform and the other oil of savin. The genital organs, stomach, and intestines, were taken for examination. Oil of savin was found in the fecal matter of intestines and in the contents of the

stomach, which had been emptied into the peritoneal cavity. From all the facts that could be gathered, from the post-mortem and chemical examinations, it appeared that the woman came to her death from taking oil of savin to produce abortion. The abortion was effected; but so much inflammation and softening of the stomach had been produced by the oil of savin that, during the severe vomiting the stomach was ruptured and death ensued. The ovaries were carefully washed and macerated in several waters, to free them from all adhering blood and serous matter; the ovisacs were then one by one punctured and their contents received into a porcelain capsule; this matter was evaporated to dryness over a water-bath, and the residuum subjected to the process for obtaining cholesterine and seroline. A concentrated hot alcoholic solution of the matter obtained was placed between glass slides to gradually crystallize. In a short time there appeared a beautiful mass of crystalline plates, which proved to be cholesterine, a portion of which is seen at Fig. 9. A quantitative examination was not made, but the qualitative revealed cholesterine largely present. No crystals of seroline appeared.

*Exp. 2. Cholesterine in ova of swine.*—The ovaries of pigs about six months old were taken and treated to separate adhering blood and outside serous matter; the ovisacs punctured, and their contents received into a large watch-glass capsule; evaporated to dryness over a water-bath, and residuum subjected to the process for obtaining cholesterine. The result was an abundant crop of crystals, having very much the appearance of those seen at Fig. 9, before referred to.

*Exps. 3, 4, and 5. Cholesterine in Graafian vesicles, liquor amnii, and brain of sow.*—A sow, weighing 525 lbs., was killed Dec. 1. She was about two years old, and very fat. The uterus contained twelve pigs that had attained about one-fourth their foetal growth. Removed for examination, while the hog was still warm, the following parts: brain, contents of gall-bladder, liquor amnii, and ovaries. The brain (cerebrum and cerebellum) in its warm, fresh state, weighed 3147.59 grains. The gall-bladder contained of dark amber-colored bile 2160 grains. Bile alkaline, slightly ropy, and about the consistence of sweet oil at 90° F. Obtained from the ovisacs or Graafian vesicles between forty and fifty drops of a thin albuminous fluid, resembling the white of a hen's egg in feel and in coagulating properties. Of liquor amnii there was about four ounces to each pig. The amniotic fluid had a slight straw-yellow colour, was clear, and almost as limpid as water. It had an alkaline reaction, and the odor of fresh serum.

Subjected forty drops of the fluid from the Graafian vesicles to the process for determining the presence of cholesterine. Obtained a small crop of well-defined crystals resembling those seen at Fig. 9.

The liquor amnii, on cooling and standing in a porcelain evaporating dish for about six hours, contained on its surface a thin iridescent pellicle fissured by several sets of cleavage lines, which were often parallel to each other, and the different sets crossing either at acute or right angles. This pellicle proved to be cholesterine.

300 grains of the fresh brain (about equal parts of cerebrum and cerebellum, gray and white matter) were taken and subjected to the process for obtaining the cholesterine. The result weighed 3.897 grains. Percentage of cholesterine in fresh brain 1.299. The cholesterine as obtained had a beautiful white pearly lustre and crystalline appearance to the unaided eye. Redissolved in ether and allowed to crystallize slowly between glass slides, the crystals under the microscope had the appearance seen at Fig. 10.

*Exp. 6. Cholesterine in bile of sow.*—Subjected 800 grains of the fresh bile from the sow to the process for obtaining the cholesterine. The result weighed 5.614 grains. Percentage of cholesterine .702. The cholesterine had a white pearly lustre and crystalline appearance. Redissolved in ether and allowed to crystallize slowly between glass slides. The crystals had the appearance seen at Fig. 7. Many of the plates were very long and narrow.

*Exp. 7. Ova of hen.*—About half of the yolk of a fresh, newly-laid hen's egg was evaporated to dryness carefully over a water-bath, and the residuum proceeded with for obtaining cholesterine and seroline. The result was an abundant crop of crystals between the glass slides, a portion of which is seen at Fig. 1. The crystals were large and less rhomboidal than in the previous experiments. No seroline was found.

*Exp. 8. Ova of black bass.*—About one ounce of the ova of a large black bass (weight about eight lbs.) was examined in the usual way for cholesterine and seroline. After the final concentrated hot alcoholic solution had evaporated between glass slides, it was examined microscopically and found to contain a beautiful and abundant crop of cholesterine, a portion of which is seen at Fig. 2. The crystals were very large, and more rectangular than those from the human ova. No seroline was found.

*Exp. 9. In the ovisac of the black bass* described in the previous experiment were two large ragged calculi, one  $3\frac{1}{2}$  inches long and  $1\frac{1}{2}$  inches in diameter. They were covered with an iridescent membrane, resembling in appearance the metallic iridescence on the surface of the fish. These calculi were examined for cholesterine and seroline, and were found to contain the former in much larger quantity than the ova. The crystals had the same appearance as those seen at Fig. 2. No seroline was found.

*Exp. 10. Seminal fluid.*—Procured from a strong healthy man, aged about 35, two drachms of seminal fluid. Evaporated to dryness over a water-bath and proceeded with the residuum in the usual way for obtaining cholesterine and seroline. The final alcoholic solution, on evaporating between glass slides, was found to be composed of an abundant crop of crystals, a sample of which is seen at fig. 5. The amount of cholesterine was large, considering the quantity of material operated upon, but the crystals were small, as seen at *a*; a large proportion of the crystalline matter, however, was seroline, having the appearance of the crystals seen at *b* and *c*. Some of these crystals are seen to be rhomboidal, very acutely so, as at *c*.

*Exp. 11. Saliva.*—Evaporated to dryness and examined for cholesterine and seroline, two ounces of healthy saliva. Evaporated it over a water-bath in a broad, flat-bottomed porcelain dish; so that in thirty minutes after it was secreted the evaporation was complete. The saliva was from a strong healthy man, in the prime of life, who neither indulged in chewing or smoking tobacco, or in the drinking of intoxicating liquors. On placing the final alcoholic solution between glass slides, there was soon produced a large and beautiful crop of cholesterine crystals, the appearance of a portion of which is seen at Fig. 6. A quantitative examination was not made, but the qualitative analysis demonstrated it largely present in the saliva; apparently almost as abundant in this secretion as in the bile. No crystals of seroline were found.



*Exp. 12. Secretion from congested and inflamed mucous membrane.*—A strong healthy man contracted a severe cold from sleeping in a damp room. About forty-eight hours after, the mucous membrane of the fauces and nose became so congested and inflamed that a thin, watery, transparent fluid flowed from the nostrils at the rate of about two drops per minute. About one ounce of this fluid was collected. Under the microscope each drop was found to contain about 200 mucus cells and 100 colourless blood-disks. The one ounce was carefully evaporated to dryness over a water-bath and the residuum treated in the usual way for obtaining cholesterine and seroline. The presence of cholesterine was demonstrated in small quantity, much less than in the serum of the blood.

*Exp. 13. Bronchial mucus.*—Took two ounces of bronchial mucus expectorated by a patient labouring under severe chronic bronchial disease,<sup>1</sup> and subjected it to the process for determining the presence of cholesterine and seroline. A very small quantity of cholesterine was obtained, the appearance of which, as crystallized between the glass slides, is seen at Fig. 8, *a* and *b*. The crystal at *b* is split at the ends, like the crystals of cholesterine found in the fluid of ascites, seen at Fig. 3, *a* and *b*. The same form of crystal also occurs in jaundice urine. There was also found a small quantity of the peculiar crystalline matter seen at *c*, Fig. 8, and the bent prisms seen at *d*. From the small quantity of cholesterine found, it is probable that what there was came mostly from the small amount of saliva which necessarily would become mixed with the bronchial mucus in its passage through the mouth. The crystalline matter seen at *c* and *d* did not occur in the saliva examined. It is fair, therefore, to infer that it belongs to the bronchial mucus. The bronchial mucus was very thick, ropy, and white, having the appearance of coagulated albumen. It was quite acid. No pus present.

*Exp. 14. Serous fluid.*—Examined for cholesterine and seroline the serous fluid from the peritoneal cavity in a case of ascites in a female aged 73. "Liver extensively diseased. Had abscess a year ago, which pointed and discharged copiously at umbilicus. The dropsical effusion rapidly accumulated up to Nov. 12th, when she was tapped."<sup>2</sup>

The fluid had a milky appearance, and was thin and watery; slightly acid. Evaporated five ounces of the fluid to dryness over a water-bath, and subjected the residuum to the process for determining the presence of cholesterine and seroline. The final alcoholic solution gave, on being gradually evaporated between glass slides, some fine groups of crystals, samples of which are seen at Fig. 3, *a*, *b*, *c*, *d*. Those at *d* represent the usual form of cholesterine crystals; several groups presented the narrow radiating tablets seen at *c*, and still others had the appearance of those at *a* and *b*, the extremities of the plates being divided and bent.

*Exp. 15. Fluid of spina bifida tumour.*—Three ounces of fluid<sup>3</sup> from a spina bifida tumour in a child, was evaporated to dryness carefully over

<sup>1</sup> This patient was attended by Dr. Boerstler, to whose kindness I am indebted for furnishing the expectorated mucus for examination.

<sup>2</sup> I am indebted to the kindness of Dr. Effinger, of Lancaster, O., for the report of this case, and the fluid furnished for examination.

<sup>3</sup> Kindly furnished by Dr. Boerstler, of Lancaster, O., to whom I am indebted for many similar favours.

a water-bath, and treated further in the usual way for discovering cholesterine and seroline. The fluid was slightly alkaline. Cholesterine was demonstrated to be present in considerable quantity.

A portion of the fluid was examined carefully under the microscope. It was thin, watery, and milky, with numerous white flocks floating though it. These flocks under a low power (200 diameters) presented the appearance of fragments of milk curd. Under a higher power (600 diameters) they were resolved into the bodies mentioned below. Many of the "milk curd masses" were composed of nerve tubuli. Occasionally was found a tuberculated cell filled with fluid, and met with in most animal and vegetable tissues, and resembling somewhat some varieties of pollen grains. There were also found numerous spherical fungoid spores, aggregated in flocks, and among them was noticed a single elongated vegetating spore. Scattered through the fluid, quite abundantly, were flattish oblate spheroidal, highly refractive cells of various sizes, many of the larger of which had the appearance of being ruptured on the side. Occasionally one was met with containing small reddish-brown spherical cells.

In the flocks mentioned above were many remains of disintegrating cells. There were also numerous minute linear bodies, moniliform in structure, all through the liquid, and which in many instances were in active motion, making the whole mass of the liquid alive with them, the fluid being still fresh and sweet. These are the so-called "*vibriones*;" they have, however, no connection whatever with the *vibrii*, either in structure or mode of development. From the numerous examinations made, connected with diseased tissues, and fermenting and decaying bodies, I am strongly impressed with the belief that many of them are organisms, allied to sperm cells, being spermatozoid or antherozoid in character. There is evidence for believing some of them to be embryonic states of filamentous organisms belonging, or closely allied to, the confervaceæ. These latter are found in their mature state abundantly in the spleen, kidneys, and liver of animals and of the human subject, wound together in various ways and firmly attached to the glandular vessels. Analogous bodies are found in all stagnant waters, in the asci of Cryptogams, in the pollen grains of Phænogams, in the secretions and blood of the human body in all low typhoid types of disease, in all fermenting bodies, and especially during the incipient stages of active putrefactive fermentation (decay) in animal tissues. By inoculating fresh meat with them its decay is accelerated. During that stage of decay in the dead human body when dissecting wounds are so dangerous, they are very abundant and active; at later stages of the decay, when wounds are less dangerous, they are less numerous, and either motionless or sluggish, or are developed into inactive filaments. May they not be the source of the dangerous typhoid conditions produced by dissecting wounds? Occasionally was met a cell containing the sperm cells (so called *vibriones*) just described. Torula cells were frequently met with, either single or aggregated in masses. There were also several asci and numerous highly refractive sporoid bodies noticed, besides a peculiar barbed filament that I have frequently met with, connected with the glands and circulating fluids of animals.

*Exp. 16. Tears.*—Evaporated to dryness forty drops of freshly secreted tears, and treated the residuum for determining the presence of cholesterine and seroline. The tears were secreted by a lady of middle age, of remarkable health and vigour of constitution.



The residuum in the forty drops was large. On allowing the final alcoholic solution to evaporate slowly between glass slides, a fine crop of cholesterine crystals was the result. They resembled much the crystals in Fig. 16.

*Exp. 17. Milk.*—Milk of a young married lady, of vigorous constitution, eight months gone with her first child. Evaporated one drachm to dryness carefully over a water bath—within a few minutes after it was drawn—and subjected the residuum (which was large) to the process for determining cholesterine and seroline. The final hot alcoholic solution, on evaporating between glass slides, yielded a large crop of rhomboidal and rectangular plates of cholesterine—a sample of which is seen at Fig. 11. No crystals of seroline were discovered. A quantitative analysis was not made; but the qualitative demonstrated cholesterine to be largely present.

*Exp. 18.* Milk from a lady of fine constitution, nursing her second child, which is nine months old. Milk abundant, and child healthy and robust. Took 500 grains of the newly secreted milk and evaporated it to dryness over a water bath, and proceeded with the residuum (which was large) to determine the presence and amount of cholesterine and seroline. On evaporating the final alcoholic extract to dryness carefully over a water bath in a tarred porcelain capsule, I found .64 of a grain of unsaponifiable matter, which proved to be seroline and cholesterine. From the apparent relative proportion of the crystals exhibited between the glass slides, I should estimate over one-half to be cholesterine.

The result may be stated as follows:—

Freshly secreted milk	. . . . .	500	grains.
Stercorine and cholesterine	. . . . .	.64	"
Percentage of stercorine and cholesterine	. . . . .	.128	"

Fearing there might be some error in this result I repeated the process—carrying on the saponification with a strong solution of pure caustic potassa—at a temperature of 212° F. over a water bath, for one and a half hours, repeatedly stirring; then largely diluting with water and filtering, &c. The result was the same as in the preceding experiment. A concentrated hot alcoholic solution, placed between glass slides, crystallized in long slender, often radiating needles, as seen in Fig. 12. Mixed with these crystals of seroline, appeared plates of cholesterine, *c, d, w, f*. These crystals first appeared as seen at *c*, then passed into the forms *d, d*, and these into the forms *w*; and *w* into the forms seen at *f, f*.

*Exp. 19.* Took 700 grains of healthy, freshly secreted cow's milk (about five months after coming in), evaporated to dryness over a water bath, and treated the residuum as hereafter described for obtaining seroline and cholesterine. The final alcoholic solution, being carefully evaporated and thoroughly dried over a water bath, in a tarred porcelain capsule—weighed .759 of a grain, which proved to be seroline and cholesterine. On redissolving in hot alcohol and allowing a concentrated solution to crystallize between glass slides, the seroline crystals were found to resemble those from the milk of the human subject (Fig. 12). Those of cholesterine were rather peculiar.

The result of the analysis may be stated as follows:—

Fresh cow's milk	. . . . .	700	grains.
Seroline and cholesterine	. . . . .	.759	"
Percentage of seroline and cholesterine	. . . . .	.1084	"



The last portions dissolved from the dry matter of the milk, by ether, contained the majority of the cholesterine. The seroline and the saponifiable fats were the first to be dissolved. For this reason, two ethereal extracts were made from the dried milk. In the first, the dried pulverized matter was digested at a temperature of  $75^{\circ}$  to  $80^{\circ}$  F. for twelve hours, in pure ether, frequently stirring, the vessel being so covered as to prevent as much as possible the evaporation of the ether. It was then filtered, and this first extract proceeded with in the usual way. No cholesterine was detected in it; but quite a large percentage of seroline, which in its crystals resembled that of the human milk (Fig. 12). The dry matter was a second time digested in ether, frequently stirring, for twenty-four hours; then filtered, thoroughly washing with warm ether, and this second extract proceeded with as with the first. The final alcoholic extract, on being evaporated to dryness over a water bath, left a yellowish matter having something the appearance and consistence of unbleached wax. Its lustre, however, was more pearly. It was but slightly soluble in cold alcohol; slowly soluble in hot alcohol, and readily soluble in ether both cold and warm. The concentrated ethereal solution, on being placed between glass slides, so as to prevent its too rapid evaporation, soon crystallized into beautiful cholesterine plates.

There were a few acicular prisms or plates, bent in the form of a crescent. They resembled those seen at *d*, Fig. 8.

Milk holds cholesterine with great tenacity, and requires long digestion to completely separate it. The early secreted milk in the human subject, previous to birth, is quite free from seroline; but after birth, and during nursing, the seroline is secreted largely with the cholesterine.

*Exp. 20. Intermittent fever. Perspiration.*—Sept. 10. John Laudabagh<sup>1</sup> was attacked with intermittent fever. Type quotidian. Had been free from the disease for eighteen years previous. On the afternoon of the 14th (fifth day of disease) procured about one-half ounce of the perspiration, during the sweating stage of the paroxysm. Perspiration alkaline, limpid like water, and perfectly clear and transparent. Subjected two drachms to the process for obtaining cholesterine and seroline. Obtained a beautiful crop of crystals, a sample of which is seen at Fig. 4, *a* and *b*. The seroline and cholesterine appeared to be about equally divided. The seroline crystals were very beautiful, long, slender needles. When a crystal was alone, so that the whole of it could be seen, one end presented the appearance of a narrow rectangular plate, while the other tapered off into a sharp acicular point. Sometimes the bases (large ends) of the crystals were bifurcated, and at others the apices were more or less divided. The cholesterine crystallized in large rhomboidal and rectangular plates. A quantitative examination was not made, but the qualitative determined these bodies to be largely present in the perspiration of intermittent fever.

*Exp. 21.<sup>2</sup> Urine.*—Charles Whitney, aged five years, was attacked Sept. 13, with intermittent fever—quotidian type. Never had chills and fever before. He resides in the 3d ward near and but a few feet above the ague bogs. At 11 A. M., Sept. 13, was taken with the first well-marked paroxysm. The sweating stage terminated at 4 P. M. On the following

<sup>1</sup> This case was reported and perspiration furnished by Dr. Effinger.

<sup>2</sup> I am indebted to the kindness of Dr. Effinger for the reports and the materials furnished for examination of the cases in Experiments 21 to 33, and 35 and 37.

day (Sept. 14) the paroxysm commenced at 9 A. M. The algid, pyrexial and sweating stages were all well-marked. Voided the sample of urine—of this experiment—at 3 P. M., as the febrile stage was passing off and the sweating coming on.

Subjected two ounces of the urine to the process for obtaining cholesterine and seroline. Obtained from the final alcoholic solution a large crop of beautiful rhomboidal and rectangular plates, a sample of which is seen at Fig. 18. Some of the crystals were divided at the extremities, as is seen at *a*.

*Exp. 22.* Mr. C——, aged 48, was attacked with intermittent fever, tertian type, Sept. 1. Arrested after the second paroxysm. Relapse Sept. 15. Arrested the second time after the second paroxysm. Urine obtained Sept. 21, four days after the arrest of the paroxysm the second time. His complexion was sallow, appetite poor, with considerable physical prostration, and mental lethargy.

His residence was near a large excavation which was being made in the low ground adjoining the canal, and from which he was constantly exposed to the seeds of the disease. Never had the disease before.

One ounce of the urine was subjected to the process for determining the presence of cholesterine and seroline. Well-marked rhomboidal and rectangular plates of cholesterine were obtained, resembling those at Fig. 18. No seroline found.

*Exp. 23.* James Scott, aged 13 years, living immediately on the border of the ague bogs, at Lancaster, O., and but about five feet above them, had been labouring under intermittent fever most of the time since the 1st of August. Type quotidian. Obtained his urine Sept. 26, during the interval between the paroxysms, and two days after he had commenced taking quinia (previously he had been dosed with herb teas). Subjected one ounce of the urine to the process for determining the presence of cholesterine and seroline. Obtained a few small well-marked crystals of the former body, but none of the latter.

*Exp. 24.* Ellsworth McLean, aged 17 months, was attacked with intermittent fever—quotidian type—during the forepart of August. Dr. Effinger saw the child for the first time on the 7th of October. He reports him as much reduced, very pale, flesh doughy; face bloated, and feet and legs œdematous. Spleen enlarged, forming a well-marked “ague cake.” He commenced his treatment with acetate of potash. He obtained the urine for me on the 9th of October, during the apyrexial stage. Urine pale, clear, and slightly alkaline. Subjected two ounces to the process for determining the presence of cholesterine. Obtained a fine crop of well-marked crystals, resembling those at Fig. 18.

*Exp. 25. Urine of remittent fever.*—Mr. C——, aged about 30, had been labouring for some days under an attack of remittent fever. Obtained his urine on the ninth day of the disease, when convalescing. Treated two ounces of the urine for cholesterine and seroline. Obtained a fine crop of cholesterine crystals, with which were mixed a few crystals of seroline.

*Exp. 26. Urine of typhoid fever.*—Mrs. E——, a married lady of about 30, of good constitution, was attacked with typhoid fever, August 26. On Sept. 9, the fourteenth day of disease, obtained his urine. Urine acid, high-coloured; full of active “vibriones,” and had a large deposit of



rhomboidal and lozenge-shaped prisms and plates of lithic acid. Pulse from 100 to 120. Considerable enteric tenderness, with slight diarrhœa. Subjected two ounces of the urine to the process for determining the presence of cholesterine and seroline. Obtained a large crop of well-defined rhomboidal and rectangular plates, a sample of which is seen at Fig. 16. The crystals were formed between glass slides, and were very large and beautiful. At *a* is a long 6-sided prism, made up of distinct laminæ.

*Exp.* 27. Mrs. E—— (the same case as 26), on the 18th of September and the twenty-second day of the disease, appeared to be improving. The mind was clearer, and appetite better; but the pulse still remained up to 110 and 120, and was small. Skin dry. Strength of body and mind improved since Sept. 9th. Obtained her urine. It was lighter in colour and contained less sediment than the previous one. The character of the sediment was, however, the same. Subjected two ounces to the usual process for obtaining cholesterine. Obtained a fine crop of crystals like those at Fig. 16.

*Exp.* 28. Mrs. E—— (same case as 26 and 27)—typhoid fever—Oct. 20, fifty-fourth day of disease. Patient still in a very low, depressed state. Pulse 120, but no fever; is very pale, body feeble, mind weak, nervous, and fretted by the least noise. Hearing completely restored and very sensitive. Has scarcely any appetite, sleep nervous and disturbed. Urinates frequently and quite copiously. Obtained the urine Oct. 20, through the kindness of her attending physician, Dr. Effinger. Urine pale (still containing many vibriones), strongly acid, and contains much less sediment than the previous samples.

Subjected two ounces to the process for determining the presence of cholesterine and seroline. Found cholesterine still present, in considerable quantity; quite as large as in the previous examinations. The plates had the appearance of those at Fig. 16. No seroline was found.

*Exp.* 29. Libby ——, domestic at Mrs. E.'s, aged 25, down with typhoid fever. Attended Mrs. E. in her attack of typhoid fever. Libby was attacked on the 4th of October, thirty-eight days after Mrs. E. was taken down. Oct. 20, the seventeenth day of the disease, obtained her urine through Dr. Effinger, her attending physician. He reports the diarrhœa constant, and the most annoying symptom, indicating enteric glandular depositions and inflammation. For the last week the passages were mixed with blood. Mind yet clear, but very deaf; has been so for over a week. Prostration not very great, less than ordinary. Urine slightly acid, high-coloured, with considerable lithic sediment.

Subjected two ounces of the urine to the process for obtaining cholesterine and seroline. Obtained a fine crop of crystals of cholesterine, which resembled those seen at Fig. 16. No seroline found.

*Exp.* 30. Libby (same case as the above, at an earlier date), Oct. 8, fourth day of the disease. Obtained urine, and subjected it to the process for obtaining cholesterine and seroline. Obtained well-defined rhomboidal and rectangular plates of cholesterine. The amount present was less than in the urine of the preceding experiment. No seroline found.

*Exp.* 31. Samuel E——, aged 11 years, son of Mrs. E——, was taken down with typhoid fever on the 8th of October. On October 20th—the twelfth day of the disease—obtained his urine, through the attending phy-



sician, Dr. Effinger. He reports the case a mild type of the disease. He says, "There are no marked symptoms of disturbance of the system, either functional or organic, except at night, when he is restless and feverish. Though an active and sprightly boy, he has no disposition to set up or leave his bed. While there recumbent he is cheerful and pleasant, amusing himself with his slate and books. As soon as he gets up and moves about he becomes pale and sick, and goes back to bed."

Urine strongly acid, of a yellowish colour, with considerable flocculent sediment. The upper portion of the precipitate is light coloured, and the lower of the colour and appearance of brick dust. This lower portion is made up of lithates. Two ounces of the urine were subjected to the process for obtaining cholesterine and seroline. A few well-defined rhomboidal and lozenge-shaped tablets of cholesterine were obtained. The cholesterine was small in this urine. No seroline.

*Exp. 32. Lucy* —, the sister and nurse of Libby (domestic to Mrs. E——), was attacked with typhoid fever on the 8th of November, thirty-six days after her sister Libby was attacked, and whom she attended as nurse. Obtained her urine, through the attending physician, Dr. Effinger, on the 22d day of November, the fourteenth day of the disease. "Fever constant, but not high. Diarrhœa set in on the 20th November (day before yesterday). Discharges frequent and bloody. Urine acid, high coloured, and contains a large precipitate of lithates.

Two ounces of the urine were subjected to the process for obtaining cholesterine and seroline. A fine crop of cholesterine crystals was obtained, the appearance of which were like those in Fig. 16. Crystallized on the glass slides it had a beautiful pearly lustre to the naked eye. Cholesterine occurred largely in this sample of urine. No seroline was found.

*Exp. 33. Urine of diphtheria.*—Lizzie Prentice, aged 5 years, labouring under well-marked diphtheria. Morning urine obtained, and two ounces subjected to the process for obtaining cholesterine and seroline. Obtained a few well-marked crystals of cholesterine. No seroline.

*Exp. 34. Urine of varicella.*—Sallie Mattock, aged 8 years, labouring under well-marked varicella. Her morning urine was obtained when the eruption was at its height. Treated two ounces of it for cholesterine and seroline. Obtained well-marked crystals of cholesterine, a sample of which is seen at Fig. 17. No seroline found.

*Exp. 35. Urine of jaundice.*—Urine of a patient labouring under well-marked jaundice. Urine voided on the fifteenth day of the disease. Urine slightly acid, high coloured, with quite a large flocculent yellow precipitate. Two ounces of the urine were evaporated over a water-bath to dryness, and the residuum treated in the usual way for cholesterine and seroline. The final alcoholic extract, on being placed between glass slides and allowed to stand for six hours, gave a fine crop of crystals; some of which represent the usual crystalline form of cholesterine. The crystals were small, but quite numerous. Some of the crystals were split at the ends, like those at *a* and *b*, Fig. 3. Others were very acutely rhomboidal; while others were acicular, yet retained somewhat the very acutely rhomboidal outline, where they were perfect and alone. These last were undoubtedly crystals of seroline, and were quite abundant.

*Exp. 36. Urine from a lady affected with jaundice.* Urine voided during

the third week of the disease. Had a high colour, strong odour, and a small, yellowish sediment, resembling oil globules. Treated in the usual way—one ounce for cholesterine and seroline. Obtained a very fine crop of crystals, consisting of long rhomboidal and rectangular plates of cholesterine, with which were mixed a few acicular crystals of seroline.

*Exp. 37. Mrs. M—*, cook on board a canal boat, aged 53, was attacked with jaundice about the first of September, and is still labouring under the disease (October 26th). Obtained urine, through her attending physician, Dr. Effinger, and subjected two ounces to the process for determining the presence of cholesterine and seroline. The final alcoholic solution, evaporated between glass slides, afforded a fine crop of cholesterine crystals, showing this body quite largely present.

*Exps. 38, 39, and 40—Butter, and beef and hog suet—*were the examinations of butter, and beef and hog suet. Cholesterine and seroline were demonstrated in all of them. In beef suet, cholesterine occurs quite largely.

*Exp. 41. Urine of diabetes mellitus.—Mr. —*<sup>1</sup>, labouring under a severe attack of diabetes. The patient is a robust, middle-aged man, who has, previous to this attack, enjoyed good health. He passed about 192 ounces of urine daily. It was rich in sugar, and underwent active fermentation; during which the torula (yeast) cells and filaments were greatly multiplied. A sample of the urine ( $\frac{1}{2}$  pint), the next day after it was voided, was subjected to the process for determining the presence of cholesterine and seroline. From the  $\frac{1}{2}$  pint, 4.32 grains of cholesterine were obtained. The crystals were very large and beautiful, a sample of which is seen at Fig. 15. No seroline was obtained. From this experiment it is seen that cholesterine occurs largely in diabetic urine. The discharge of a single day (192 ounces) would contain 103.68 grains of cholesterine. The discovery of cholesterine, as a secretion of the kidneys in *diabetes mellitus*, may throw some additional light upon the nature of the disease, and perhaps suggest some modifications in its treatment.

*Exp. 42. Healthy urine.—*Examined 8 ounces of healthy urine for cholesterine and seroline. The urine was voided by a pregnant lady, of fine constitution, eight months gone with her first child. Urine slightly acid. Was unable to detect the least trace of either of the bodies sought for.

*Exp. 43.—*Examined the urine of a strong, healthy man, aged about 30, for cholesterine and seroline. Subjected 4 ounces to the usual process (the one used in the preceding experiments), but was not able to detect a trace of either of the bodies.

*Exp. 44. Perspiration in health.—*Examined 1 drachm of healthy perspiration (secretion excited by vigorous exercise) for cholesterine and seroline. Well-marked crystals of cholesterine were found. No seroline.

*Exp. 45. Ovarian tumour.—*The following note from Dr. Effinger, of Lancaster, Ohio, explains the subject of this experiment:—

“DEAR DOCTOR: Yesterday morning I made a *post-mortem* of Mrs. Calvin Tripp, who died of ovarian tumour. The tumour weighed 62 pounds, water 15 lbs., and hard part of tumour 47 lbs. I made a few slices from different parts

<sup>1</sup> I am indebted to Dr. Boerstler for reporting this case and furnishing the urine for examination.



of the tumour, which I send you. I found imbedded in the substance a small, dead worm that may possibly be a novelty. You will find it in the cut I made near its burrow cell.

"Respectfully yours,  
"M. EFFINGER.

"LANCASTER, Nov. 29th, 1862."

The tumour had a white, fatty appearance, to the unaided eye. It was, however, very firm and tenacious. The microscope demonstrated it to be strictly a fibrous tumour. A portion of it was examined for cholesterine and seroline, but neither of them were detected.

Fig. 13 represents the worm referred to in the above note of Dr. Effinger. Length two lines; diameter  $\frac{2}{5}$  of a line. To the naked eye it had the appearance of a small fragment of clotted blood. Viewed with a  $\frac{1}{4}$  inch objective, it appeared the size seen at Fig. 13. Colour blood-red, except the sucker and around the margins of the body. When emptied of its food it had a transparent white colour. It had one sucker, and that on the anterior part of the body. It appears to be allied to the genus *Festucaria*.

While examining a thin slice of the tumour under the microscope, I discovered among the fibres, the mite represented at Fig. 14. Length  $\frac{1}{300}$  of an inch. A short time since, while examining the perspiration from a patient labouring under intermittent fever, I found a different species of the same genus.

*Chemical Properties of Cholesterine.*—The sample of cholesterine, obtained from the second ethereal extract from milk, remained unfused at a heat considerably above that of boiling water. Its precise freezing point was not determined. The freezing point of cholesterine is stated by different authorities at  $279^{\circ}$  and  $293^{\circ}$  F.

Concentrated  $\text{SO}_3$  strikes a beautiful purple red colour, with the cholesterine obtained in the foregoing experiments. In order to see this test to advantage, a little cholesterine should be spread thinly on a glass slide or plate, and a drop of concentrated  $\text{SO}_3$  placed on and spread over it by means of a glass rod. The beautiful purple red tint will begin to show itself—first, around the edges of the acid, and, in a few minutes, the whole surface will assume this beautiful colour. Heat should not be applied, nor too much acid used.

Cholesterine is soluble in 9 parts of boiling alcohol of 0.84, and 5.55 parts of 0.816. It is soluble in 12 parts of ether at  $32^{\circ}$  F., 3.7 at  $59^{\circ}$  F., and 2.2 at boiling. It is also soluble in wood-spirit, slightly soluble in boiling oil of turpentine and in water containing 4 parts of dry soap. Heated with  $\text{SO}_3$  it decomposes, and  $\text{NO}_3$  changes it into cholesteric acid and artificial tannin. Form.  $\text{C}_{38}\text{H}_{33}\text{O}$ , or  $\text{C}_{36}\text{H}_{32}\text{O}$ .

*Chemical Properties of Seroline.*—Lehman gives the melting point of seroline at  $98^{\circ} 8'$  F. Boudet at  $97^{\circ}$  F.

Boudet's process for obtaining seroline from the blood—was to evaporate the blood to dryness, treat the residuum thoroughly with water, then dry completely the residuum, and repeatedly treat it with boiling alcohol.



This alcoholic extract on cooling let fall the seroline in flocks. By this process Boudet must have obtained with the seroline some small portions of margarine and stearine, which would have a tendency to elevate the melting point.

For obtaining the seroline, which was used for determining the fusing point of this body, I evaporated to dryness over a water bath, pulverized in an agate mortar and digested with pure ether for twelve hours—repeatedly stirring and keeping the vessel so covered as to prevent the evaporation of the ether—filtered, evaporated filtrate to dryness over a water bath, and digested the residue at  $212^{\circ}$  with a strong solution of pure caustic potassa for one and a half hours to saponify the saponifiable fats; then largely diluted with water and filtered, washing the filter with water till the fluid came through neutral. The filter was then thoroughly, yet carefully dried over a water bath, placed in a warm covered funnel and kept filled with ether till that which passed through, on evaporation, left no residuum. The filtrate was then evaporated to dryness over a water bath and redissolved in hot absolute alcohol, and the seroline allowed to deposit as the alcohol cooled and evaporated spontaneously. Before the seroline was tested for the fusing point, it was exposed to the heat of  $212^{\circ}$  over a water bath in a watch glass, until completely deprived of all alcohol and moisture. It was then allowed to cool and crystallize at a temperature of  $50^{\circ}$  F. When perfectly crystallized, its fusing point was determined.

The seroline thus obtained began to lose its white colour and crystalline structure at  $90^{\circ}$  F. At  $94^{\circ}$  F. it had the consistence of Canada balsam and had lost entirely its crystalline structure, and at  $96^{\circ}$  F. it flowed readily, and was about the consistence of sweet oil. At this last temperature it had a light straw yellow tinge. At  $32^{\circ}$  F. it had a white pearly lustre, like spermaceti, but less consistent. At  $50^{\circ}$  F. it had the consistence of lard at  $80^{\circ}$ . When allowed to crystallize slowly, it crystallized in long slender needles, as seen at Figs. 12 and 4. Cold, it was odourless; at  $212^{\circ}$  it exhaled a sweet oily odour. Almost insoluble in cold alcohol, but very soluble in ether and hot alcohol. Strikes, like cholesterine, a beautiful violet red colour with strong  $\text{SO}_3$ .

*Primary Form of the Crystals of Cholesterine and Seroline.*—The primary form of the crystals of cholesterine appears to be the cube and rhombic prism. In a few instances, in the early stages of the crystallization, hexagonal prisms were noticed; but these were probably formed from the rhombic prisms by the truncation of the acute angles, as is the case in some crystals of mica. The octohedra, rectangular prisms and plates may be secondary forms of the cube and rhombic prism.

In these experiments there has appeared some evidence in favour of the very acute rhombic and rhomboidal prisms being the primary form of the acicular crystals of seroline.

*Resumé.*—The following is a brief summary of the facts indicated by the preceding experiments:—

1. Cholesterine occurs largely in the ova of the human subject and of animals.

2. In the seminal fluid of the human subject, seroline and cholesterine are largely present, the former more so than the latter.

3. Cholesterine occurs very largely as a secretion in the saliva. No seroline is found.

4. Neither seroline nor cholesterine occurs in healthy urine.

5. Cholesterine occurs quite largely, and seroline in small quantity in jaundice-urine. (These bodies are probably always secreted by the kidneys whenever the liver, through organic or functional derangements—is unable to secrete them from the blood.)

6. Cholesterine and colourless blood disks are secreted or effused from highly congested and inflamed mucous surfaces.

7. Cholesterine is secreted or effused from the peritoneal (serous) membrane in ascites.

8. Cholesterine occurs largely in the fluid of spina bifida tumours.

9. Cholesterine is secreted by the tear glands.

10. Human milk, previous to birth, is rich in cholesterine. No seroline detected in the experiment made.

11. After the birth of the child, and during nursing, the mammary glands secrete largely cholesterine and seroline.

12. The milk of the cow is rich in cholesterine and seroline.

13. Butter, beef, and hog suet contain cholesterine and seroline.

14. The primary forms of the crystals of cholesterine appear to be the cube and rhombic prism; and that of seroline, the very acute rhombic or rhomboidal prism; though usually appearing as simply acicular.

15. Cholesterine and seroline are largely secreted from the blood by the sudorific glands during the sweating stage of intermittent fever. These glands become important blood depurative organs in this disease.

16. The kidneys largely secrete cholesterine in intermittent fever.

17. The kidneys secrete cholesterine in varicella.

18. The kidneys secrete cholesterine in diphtheritic conditions.

19. The kidneys largely secrete cholesterine in the disease known as *diabetes mellitus*.

20. The kidneys secrete cholesterine and seroline in remittent fever.

21. The kidneys largely secrete cholesterine in typhoid fever.

22. Cholesterine is secreted by the sudorific glands in health.

*Concluding Remarks.*—Cholesterine appears to be essentially a body, secreted from the blood by the glands concerned in digestion; the sudorific glands; those secreting tears and milk; and by the testis of the male and ovary of the female, and by the kidneys in hepatic disease. In the secre-

tions of the testis (seminal fluid), seroline occurs more largely than cholesterine. In the female ova, cholesterine occurs largely, and no doubt has some office to perform in furnishing one important constituent of nourishment in the early foetal development; before, in viviparous animals, there are any uterine attachments; and in oviparous, before they escape from the ovarian envelopes. Mucous and serous surfaces do not appear to have any power to separate cholesterine from the blood; unless perhaps when under the influence of congestion and inflammation.

As cholesterine occurs so largely in the bile and saliva, two secretions important in digestion, in the female ova, and in the mother's milk upon which the young feed, is it not highly probable that it has some important function to perform in digestion, at all ages; and as nourishment and a soporific in infancy, it only becoming excrementitious proper when this office is ended, and it is changed into seroline (stercorine of Dr. Flint)?

It is believed to be pretty well established, that the true source of cholesterine is the nervous system, of which it is an effete product. From the nervous system it passes to the blood, and is removed from the blood by the liver.

These experiments go to show that the liver is not the only organ which separates this body from the blood. The salivary, tear, mammary, and sudorific glands; and the testis and the ovary come in, each in its peculiar time and place, as important aids. They also show that a portion of the cholesterine of the human body may be taken into it through the food eaten, consisting of milk and butter, eggs, beef, and hog fat, and as there are more or less blood and serous matter in meat, be taken in in that substance also. Still, these facts do not argue against the nervous system being its true original source. They only show that it is formed in the nervous system of animals as well as in that of the human subject; and that in feeding upon animal food, the vascular system may gather this substance from two sources, the nervous system and the food eaten. The nervous system being the source of cholesterine, and the tear glands secreting this body, may explain why the profuse shedding of tears, in health, for any great length of time, so enervates both physically and mentally.

All functional and organic derangements of the liver produce despondency. The dark side of the picture is the one ever prominent. Actions and remarks are perverted, and everything goes wrong. There is a tendency for this condition to relieve itself, especially in the female sex, by a profuse flow of tears. May not this peculiar mental and moral condition, full of sad forebodings, be but a part of that beautiful sympathy of action between different organs of the body, wisely designed, in this instance, to stimulate the tear glands to excited action, in order that they may perform, to some extent, the depurative office of a liver, and thus relieve, partially, a vascular system surcharged with cholesterine?

That weeping relieves sad and despondent conditions is so true that you



everywhere find it proverbial; it is well known that sudden grief does much towards deranging the functions of the liver. The tear glands, through sympathy, appear to come in as little safety-valves to the vascular system on such occasions, as well as on others hereafter mentioned, where the liver is deranged in its functions.

In climates where there is a disposition to "biliousness" ("bilious climates"), there is a tendency to inaction of body and mind; a heavy lethargic feeling prevails; a greater tendency to lounge about lazily and to sleep than in less "bilious" localities; the intellect is inactive and heavy; there is also a tendency to the greater deposition of adeps—a tendency to obesity.

In all diseased conditions of the liver where its normal functions are impaired, there is great dulness and lethargy, with a feeling of melancholy sadness and a disposition often to doze and sleep.

Children while nursing sleep a great portion of the time; they fall asleep while feeding; there is also a remarkable tendency to take on fat. After being weaned they are much more wakeful, and the fatty deposits usually decrease.

The free use of cows' milk as food produces heaviness and a tendency to sleep. The use of eggs largely as food produces a similar lethargic condition.

May we not account for the lethargic influence and the tendency to sleep and obesity of "bilious climates," on the ground of the blood and nervous system becoming and remaining constantly surcharged with cholesterine? In diseased conditions of the liver, when its depurative functions are impaired, we know the blood and nervous system become surcharged with this body, and we know that this surcharged condition produces results similar to those of "bilious climates."

May not the cholesterine and seroline in the food of nursing infants be one cause of their disposition to sleep and to become fat?

May not these bodies also, in milk and eggs, be the cause of their producing heaviness and sleep? When using milk and eggs as food, the liver has to perform the double office of removing the cholesterine formed by the nervous system and that taken into the blood by the food eaten. The result is that the blood and nervous system become surcharged with this body, and we have temporarily the same condition of the system that occurs in "bilious climates." The liver being more or less deranged in its functions in intermittent fever, the sudorific glands come in as blood depurative aids in freeing the vascular system of cholesterine and seroline and other effete matters. This may explain, to some extent, the advantage derived from the free use of diaphoretics as aids in the successful treatment and eradication of this disease.

The secretion of cholesterine from the blood by the kidneys, in intermittent fever, may explain why it is that the free use of diuretics (acetate of potash, &c.) are so beneficial often in its treatment. Without the free use

of diaphoretics and diuretics in the treatment of intermittent fever the disease is seldom so perfectly eradicated from the system as to prevent its reappearance the following spring; while with their proper use, the disease seldom reappears unless the system is again exposed for some length of time to the exciting cause.

The discovery of the fact that the kidneys secrete cholesterine largely in diabetes mellitus may throw some light upon the pathology and therapeutics of this peculiar disease.

*Ready process for detecting the presence of cholesterine and seroline.*—As the ordinary process for determining the presence of cholesterine and seroline is too lengthy and often beyond the facilities of the practising physician, I here give a simple method, which may answer as a very good approximate means (till a better is suggested) for detecting these bodies in urine and other secretions, and which may often be used with advantage by physicians in their practice as a diagnostic aid. Care should be taken, in the microscopic examination of crystals obtained from the secretions by this process, to not confound those of cholesterine with those of lithic acid and chloride of sodium. As the secretion of these bodies by the kidneys is an abnormal function, one which they only perform when the liver, whose normal office is to secrete these bodies, is deranged, their presence in the urine will usually indicate hepatic derangement.

Place two to four ounces of urine in a six ounce bottle, and add one ounce of pure ether; tightly cork, and agitate by turning quickly the bottle on different ends, allowing the ether to pass backward and forward through the urine, so as to wash it completely—two to five minutes' stirring are usually sufficient;—then allow the ether to rise to the surface, and decant into a clean porcelain or glass dish and evaporate carefully to about ten drops, which place between glass slides and set aside for several hours to crystallize. When this is completed, a microscopic examination with a moderate power will detect the cholesterine plates and acicular crystals of seroline, if present.

In concluding, I take pleasure in expressing my obligations to Drs. Boerstler and Effinger, of Lancaster, Ohio, for valuable aid. They have felt a lively interest in these experiments, and have done me many favours in reporting well-marked cases of disease and in furnishing specimens for examination.

ART. II.—*Clinical Report on Hydro-Peritoneum, based on an analysis of forty-six cases.* By AUSTIN FLINT, M. D., Prof. of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, N. Y., and in the Long Island College Hospital.

THE term *hydro-peritoneum* is applicable only to a purely dropsical or serous effusion into the peritoneal sac. The term *ascites* should perhaps be used in the same restricted sense, but writers are accustomed to apply this term to an inflammatory, as well as a dropsical, effusion. The two forms of effusion being pathologically distinct, they should be studied separately, and I shall limit myself in this article to the latter form; that is, to the non-inflammatory or dropsical effusion. Excluding cases in which liquid (serum and lymph) accumulates in the peritoneal sac as a result of peritonitis, most of the cases in which effusion accompanies carcinomatous deposit will also be excluded, the effusion in these cases being generally due to superadded peritoneal inflammation. Hydro-peritoneum occurs in connection with anasarca dependent, generally, on either renal or cardiac disease, or on the two combined. I shall exclude the consideration of cases in which peritoneal is only an element of general dropsy, and confine myself to hydro-peritoneum considered as a local affection.

The clinical study of hydro-peritoneum offers several interesting questions. The first point to which attention will be directed is the causation of the affection. The affection is secondary, and dependent, as is well known, in a large majority of cases, on disease of the liver. Questions of interest have reference to its connection with hepatic and other morbid conditions, and also to remote causes co-operating with the conditions on which the dropsy is immediately dependent. Other points of inquiry relate to the symptomatology of the affection, to its progress and termination, the prognosis, and the management. I shall consider the subject so far, and so far only, as the questions embraced in its clinical study may be elucidated by the facts contained in the recorded histories of forty-six cases. I have recorded these cases during the last thirteen years. A very large proportion, viz., 37, were observed in hospital practice; 2 cases were in dispensary, and 7 in private practice. They were observed in different places, as follows: 10 cases in Buffalo, N. Y.; 5 cases in Louisville, Ky.; 11 cases in New Orleans, La., and 20 cases in the cities of New York and Brooklyn. Some of the histories are incomplete, the patients having passed from my observation prior to the termination of the affection. The histories vary, also, as regards completeness in details while the cases were under my observation. Such as they are, I shall analyze them and give the results in treating of the different branches of the subject. In a considerable proportion (24) of the cases a fatal termination either occurred while the patients were under my observation, or the death of the patient



was ascertained. A certain proportion of the remaining 22 cases doubtless ended fatally after the patients had passed from my observation. But for convenience of reference I shall include the latter under the head of non-fatal cases. The prognosis will be one of the topics for consideration, and it will be seen in that connection that the instances in which a permanent recovery was known to take place are very few.

**CAUSATION OF HYDRO-PERITONEUM.**—The causation embraces, as just stated, the proximate morbid conditions giving rise to the dropsy, and the remote causes producing the morbid conditions on which the dropsy immediately depends, and, also, accessory causes. The proximate morbid conditions are to be ascertained mainly by examinations after death. What are the changes found in fatal cases which, from their constancy and character, may be considered as standing in an immediate causative relation to the dropsical effusion? With reference to this question I will proceed to interrogate the fatal cases in my collection in which post-mortem examinations were made.

Examinations after death were made in 14 cases. In each of these cases the liver presented morbid changes. This organ was reduced in volume in 13 of these cases; its volume was increased in one case only. The degree of reduction varied, being in some cases moderate, in other cases considerable, and in one case very great. The weight in all but two of the cases in which the organ was weighed, was diminished below the limit of the variations of health. It was weighed in 10 cases. In one the weight was 3 lbs. 9 oz., which is not perhaps sufficiently below the normal average to be considered as necessarily abnormal. In the remaining 9 cases, the weight varied from 2 lbs. to  $3\frac{1}{4}$  lbs. The organ was not weighed in the case in which the reduction in volume, and, probably, also in weight, was greatest. The gross appearances, aside from the volume, differed considerably in different cases. In 8 cases the organ was not altered notably in form, and the external surface was everywhere smooth. In 1 case the deformity was great although the surface was smooth. In 5 cases the surface was nodulated and the form more or less altered. In one case the deformation was so great that the organ would not have been recognized. Of this case I shall give an account presently. The external appearances in the other four cases are thus described:—

CASE 1. "Surface irregularly nodulated, the projecting portions varying in size from that of a pea to a filbert, and of a dark greenish colour."

CASE 2. "Whole surface studded with nodules varying in size, presenting a hob-nail appearance, the nodulated portions parenchymatous and the intervening spaces fibroid."

CASE 3. "Surface irregular."

CASE 4. "Liver studded with hob-nail eminences."

In one case a little lymph was observed on the convex surface of the

organ. The appearance, on section, of the cut surfaces, is described in several cases as granular. In one case the nutmeg appearance was marked. In one case it is noted that the "cut surfaces presented irregularly shaped portions of variable size and of a dark green colour, with white hard spots and white lines irregularly disposed." The granular portions were in some cases yellow. It is noted in one case that "on section the surfaces present an appearance as if studded with yellow granules of the size of pins' heads." In one of the cases the cut surfaces had a mahogany colour, the lobules not being distinctly visible. The two orders of venous radicles, viz., the intra-lobular and the inter-lobular, were sometimes visible and sometimes not apparent. The condition as regards the amount of blood contained in it varied. Generally but little blood or serum flowed when incisions were made; the organ appeared to be dry and anæmic. But in one case there existed marked congestion, blood flowing freely from the cut surfaces. In most cases it is noted that the organ was unusually dense and resisting. As an exception to this rule in one case it is noted as soft and flabby. The microscopical appearances are noted in a few of the cases. In one of these the "liver cells were small, wasted, irregular in shape, and filled with granular matter." In another case the "liver cells contained oil drops and granular matter." In two cases "the liver cells contained oil drops in abundance." In one of these cases the nutmeg appearance was marked. In another case the "liver cells were reduced in size, containing some oil drops and granular matter." In the case in which the liver was enlarged, the liver cells were filled with oil, and the field of the microscope was crowded with oil drops of different sizes. The records are defective as regards the presence of fibrous tissue in the interlobular spaces. Adhesions to adjacent organs are noted in two cases, and in one of these the organ was excessively contracted and deformed. In both cases the surface was universally adherent to the surrounding parts.

These results go to show the constancy with which, in fatal cases of hydro-peritoneum the affection is associated with disease of the liver. They show the frequency of contraction of this organ. They show that the external surface in a certain proportion of cases is nodulated, but that it is oftener smooth; that the cut surfaces generally present a granular appearance; that the colour varies, being either yellowish, greenish, or of a dark brown mahogany colour; that the two kinds of venous radicles may be, or may not be apparent; that the nutmeg appearance is sometimes marked; that the organ is usually dense and resisting, but may be soft and flabby; that it is generally anæmic, but may be congested, and that it is sometimes morbidly adherent to adjacent parts. Notwithstanding these variations in the gross appearances, the essential morbid change in all the cases would be considered as embraced by the term *cirrhosis*. This term, first employed by Laennec when the minute anatomy of the liver was very imperfectly understood, denotes an appearance by no means uniformly pre-

sent, viz., a yellow colour resembling that of impure beeswax. Laennec considered the appearance of yellow granules as due to a peculiar morbid product, bearing an analogy to the tuberculous deposit; other pathologists, regarding the liver as consisting of red and yellow anatomical elements, attributed the change to an hypertrophy of the latter. These ideas have been abandoned, and, now that the normal structure of the organ has been in a great measure elucidated by the researches of Kiernan and others, much light appears to have been shed on the morbid condition in cirrhosis, and the rationale of the peritoneal dropsy dependent thereon. What is the essential morbid condition in cases of so-called cirrhosis? I will devote a few remarks to this question.

I shall offer nothing with reference to the nature of the lesion in cirrhosis, as conclusions drawn from personal researches. This branch of the subject lies within the domain of microscopy. My remarks will relate to the views held by microscopical observers. There is considerable unanimity of opinion, at the present moment, on this point. The primary change is supposed to consist in the exudation of fibrin into the interlobular spaces, and the production of fibrous tissue in this situation. The microscope reveals an abnormal abundance of this tissue, and, indeed, this is often apparently obvious to the naked eye. The contraction of the organ is attributed to the shrinking of this newly formed tissue, and to the atrophy of the lobules or acini caused by its pressure upon them. The dropsy is explained by the pressure of the exudation and newly formed tissue on the terminal branches of the vena portæ, or the interlobular veins, which occupy the same situation, viz., the spaces between the lobules. Pressure upon these venous radicles produces obstruction within the liver of the portal circulation; congestion of the portal vessels of the abdominal viscera follows, and serous transudation occurs as a result of the mechanical pressure on the coats of the vessels incidental to the portal congestion. The nodulated appearance and deformation of the liver arise from the exudation and newly formed tissue being more abundant, or the shrinking and atrophy being greater in some parts than in others. The anæmic appearance and dryness in many cases, together with the wasting of the liver cells, are other consequences of pressure within the liver. The point of departure being the exudation of fibrin, and, this being the great characteristic of inflammation, the morbid process is considered to be inflammatory. Cirrhosis, thus, according to the pathological view just stated, is neither more nor less than a diffused, subacute inflammation of the connective tissue, which is generally supposed to exist in the interlobular spaces, being an extension of Glisson's capsule. This is an epitome of the pathology of cirrhosis, according to the views of most pathologists at the present time. The rationale just given is not, however, accepted by all pathologists. Dr. Beale, of King's College Hospital, London, has offered a different doctrine.<sup>1</sup>

<sup>1</sup> Beale's Archives of Medicine, No. 2, 1858.



He has been led to conclude that the change commences in the cells contained within the lobules of the liver; the cells near the circumference of the lobules being first affected, and the affection extending gradually from the circumference to the centre. As a consequence of the altered condition of the liver cells, he thinks the attractive force inherent in the organ, which determines the flow of portal blood, is lessened; consequently the interlobular veins shrink, and there is an impediment to the portal circulation through the liver. His explanation of the dropsy is the same as that involved in the commonly received doctrine; it is the result of pressure on the walls of the portal vessels incidental to portal congestion. He bases his opinion of the primary, or essential change, on the number of the interlobular vessels, which remain permeable, as shown by injections; and he supposes that the appearance of an abnormal abundance of fibrous tissue may be due to the remains of the wasted and shrunken vessels and ducts, rather than to the presence of an adventitious tissue. According to this doctrine, the pathological process in cirrhosis is not inflammatory, but a degenerative change, having its point of departure in the secreting cells of the liver. I shall not enter into any discussion of these conflicting views. The question is to be settled, not by discussion, but by continued microscopical researches.

Contraction of the liver, apparently from external compression, may give rise to hydro-peritoneum. One of the cases afforded an example of this fact. The following are the important points in the history of this case:—

Caroline E., aged 20, of small size, spine curved, sexual system, including mammæ, undeveloped, was attacked with hæmatemesis, December, 1850. The hemorrhage was copious, but ceased after six hours. She was attended by the late Dr. Wilcox at Buffalo. Another attack of hæmatemesis occurred in January, 1851. In February, 1851, she was supposed to have peritonitis, and mercury was given to pyalism. About this date the accumulation of liquid in the peritoneal sac commenced. In March, 1851, she had another attack of hæmatemesis. The peritoneal dropsy increased in spite of the use of digitalis and the bitartrate of potassa; and she was tapped in the following month of April. She was tapped again in May following. Vomiting then became a prominent symptom, and she died in June, 1851. On opening the abdomen, and giving exit to a large quantity of transparent liquid, the parts surrounding the liver were closely and firmly adherent to this organ, so as to completely conceal it from view. The adhesions were evidently of long standing. There was no evidence of recent peritonitis. The liver, when the adherent parts were dissected from it, was found to be greatly reduced in size, irregularly lobulated, and so deformed that the organ would not have been recognized. The weight is not noted. The internal structure was not examined. The ovaries were small, smooth, and transparent, containing no corpora lutea. The uterus was extremely small. The patient had never menstruated.

In this case the adhesions of the liver to the surrounding parts were

manifestly of older date than the dropsy; and it is fair to conclude that the exudation of lymph on the surface of the organ had contributed to the atrophy by compression. But it is also to be inferred that disease of the liver existed prior to the serous inflammation, inasmuch as circumscribed peritonitis does not occur, except as secondary to an affection of the viscera with which the affected portion of peritoneum is connected.

An important point of inquiry relates to the co-existence of affections of other organs with disease of the liver. What other affections are liable to be concerned, proximately or remotely, in the causation of hydro-peritoneum? This question applies particularly to affections of the spleen, the heart, and the kidneys. The histories of the fatal cases are to be interrogated with reference to these organs.

As regards the *spleen*, in nine of the histories it is not mentioned. I am certain that in most, if not all these cases, this organ was neither notably increased nor diminished in volume. In one case it is noted to have been small and wrinkled. In two cases the volume was much increased, being larger, and also greater in weight than the liver. In two cases the weight is given, being in one 2 lbs. 13 oz.; and in the other 18 oz. These facts show that notable enlargement of the spleen is the exception rather than the rule, and that the organ is sometimes diminished in size. There is no ground, so far as these facts are concerned, to suppose that enlargement of the spleen plays an important part in the production of peritoneal dropsy. And when it is considered how often enlargement of the spleen occurs as a sequel of intermittent fever without the occurrence of dropsy, we must regard it as an error to include this among the causative conditions of hydro-peritoneum. It is so included by most authors of works on the practice of medicine. The infrequency of enlargement of the spleen in fatal cases of cirrhosis would not be anticipated, and I suspect it is opposed to a general impression among practitioners. It is certainly a reasonable *à priori* inference that a degree of obstruction to the portal circulation within the liver, giving rise to congestion of the abdominal viscera, sufficiently to occasion dropsical effusion, should induce sufficient congestion of the spleen to increase its size. The fact, however, that the spleen is enlarged in only a small proportion of cases, shows other circumstances than portal obstruction to be requisite in the production of the enlargement when it does occur.

The condition of the heart is not mentioned in the notes of the autopsies in two cases. Of the remaining ten cases, in two there existed universal, old pericardial adhesions. In one of these two cases the heart was enlarged, weighing 14 oz.; in the other case the organ was below the normal size. There was rigidity of the aortic valves and enlargement (weight 11 oz.) in one case. The heart is noted as healthy in all the remaining, viz., in seven cases. These results do not go to sustain a common impression that disease of the heart precedes and has a causative relation to cirrhosis



of the liver. When these two organs are affected together, the association is probably a coincidence only. The physical signs enabling us now to determine positively the existence or absence of cardiac lesions, the question as to the condition of the heart in cases of hydro-peritoneum, will come up again when the histories of the non-fatal cases are considered.

The condition of the kidneys is noted in all but three, that is, in 11 cases. These organs were considered to be healthy in 5 of these ten cases. In the remaining 6 cases they were manifestly diseased. In one case it is simply stated that they presented the appearance of "incipient granular degeneration." In all the other cases they were enlarged and granular. In 2 cases fatty degeneration was marked. Coexisting disease of the kidneys, thus, it would seem, occurs in a sufficiently large proportion of cases to show either some pathological connection between the affection of these organs and of the liver, or that both affections are effects of the same causative conditions. The existence of a relation of causation between the two affections, and, if such a relation exists, the question whether the affection of the kidneys proceeds from disease of the liver, or *vice versa*, are to be determined by ascertaining in a sufficiently large collection of cases which of the affections occurs prior to the other. The facts noted with respect to the autopsies in the fatal cases now under consideration, are insufficient to shed light on these points. The same questions, however, will occur in connection with the histories of the non-fatal cases, inasmuch as the presence of albumen in the urine may be considered as a pretty uniform criterion of the existence of disease of the kidneys. It is worthy of remark that in none of the cases in which disease of the kidneys coexisted, were these organs contracted, a fact which renders the absence of albumen in the urine more reliable as evidence, in cases of hydro-peritoneum, that the kidneys are not diseased, since it is chiefly in cases of contracted kidneys that we meet with the exceptional instances in which albuminuria is wanting.

As regards other organs than the spleen, heart, and kidneys, there existed double pleurisy in one case, with considerable effusion of lymph and serum in both sides. In this case there were old pericardial adhesions, and the kidneys were diseased. In another case there existed œdema of the lungs. In this case, also, old pericardial adhesions existed. In one case there were ulcerations in the large intestine. In one case there was a deposit of lymph beneath the arachnoid on the superior portion of the cerebral hemispheres. The lungs were stated to be healthy in 5 of the cases.

Reviewing the foregoing results, the only constant lesions were in the liver. Undoubtedly this organ is affected in the vast majority of fatal cases of hydro-peritoneum; and undoubtedly, in the vast majority of cases, the affection of the liver is of that kind known as cirrhosis. Enlargement of the liver from fatty or other deposit, was found in only one of the cases.



The purely fatty liver certainly does not give rise to peritoneal effusion. Having met with a large number of examples of the latter in hospital practice, I am warranted in speaking thus positively on this point. But that an abnormal amount of fatty deposit may coexist with the changes giving rise to peritoneal dropsy is undoubtedly true, although it is an exception to the rule. This was the fact in two of the cases analyzed; and in one of these cases the amount of fatty deposit coexisting with cirrhosis was sufficient to cause considerable enlargement of volume, the weight being 6 lbs. 6 oz. Whatever views may be held respecting the point of departure, or the nature of the changes in cirrhosis, it seems to be clear that the dropsy in fatal cases is due to congestion of the portal system arising from obstruction to the free passage of the portal blood through the liver. Fatty deposit does not involve this obstruction sufficiently to produce dropsy; and this remark holds good with respect to carcinoma of the liver, and of the deposit known as lardaceous, certainly in the majority of cases. It is easy, however, to understand that portal obstruction and consequent congestion, sufficient to produce dropsy, may occur independently of any hepatic lesion. Obstruction of the vena portæ may arise from a coagulum within the vein, or, by outward pressure from a tumour pressing upon the vein, examples of which have been reported. That enlargement of the spleen may give rise to hydro-peritoneum is not probable. In cases of dropsy attributed to this organ, it is fair to presume that coexisting disease of the liver or some other causative condition was overlooked. Disease of the heart is not associated sufficiently often with cirrhosis to assume that any pathological connection exists between the two affections when they are found together: the union is to be regarded only as a coincidence. Disease of the kidney, on the other hand, is associated in fatal cases sufficiently to suggest the probability of some pathological connection, but whether one conduces to the other, and, if so, which stands to the other in the relation of causation, or whether both are in the relation of effects of a common cause, remain to be ascertained. Other affections found in fatal cases, such as meningitis, pleurisy, pulmonary œdema, doubtless occur as coincidences.

It is to be borne in mind that thus far the causation of hydro-peritoneum has been considered with reference to the facts obtained after death. Of course, attention has been limited to fatal cases. The source of the affection in the few cases which end in recovery, will be one of the points of inquiry in proceeding now to consider those facts pertaining to the histories during life which had a bearing on the causation. These facts are to be considered with reference to their causative influence either proximately or remotely, in other words, as concerned immediately in the production of the dropsy, or as conducive to abnormal conditions on which the dropsy is immediately dependent. Directing attention, first, to the most frequent and efficient

of the remote causes, I will interrogate the histories respecting the habits of the patients as regards the use of alcoholic stimulants.

Of 20 fatal cases, in the histories of which the habits of the patients as respects drinking are stated, in 17 intemperance was acknowledged. In only three of these cases was intemperance denied; and in one of these 3 cases the patient admitted the habit of drinking, but not to excess. Of 20 non-fatal cases, in 12 intemperance was acknowledged. In 6 cases intemperance was denied, but in 3 of these 6 cases moderate drinking was admitted. In 2 cases only was it certain that the patients were not in the habit of drinking, in one case the patient being a child twelve years old. Thus, of 40 cases, fatal or non-fatal, intemperance was acknowledged in 29; in 4, moderate drinking was acknowledged, leaving 7 cases in which the use of alcoholic stimulants was not ascertained; and of these 7 cases in 2 only was it certain that alcoholic stimulants were not used to excess. Of the 29 cases in which intemperance was acknowledged, in 24 the form of alcoholic stimulant used was noted, that is, whether spirits, wine, or malt liquors. In all these cases, with a single exception, spirits were used. In the excepted case the patient stated that he drank only beer.

As regards the mode of drinking, of the 23 cases in which spirits were used, in 15 information is noted in the histories. And in all of these 15 cases, the mode of drinking was, to take raw spirits at different periods of the day, before breakfast, and at other times, on the empty stomach, a little water being drank generally after the spirits. In the remaining 8 cases, the histories contain no information on this point. This result is striking, and accords with the view which other clinical observers have entertained, viz., that the habit of drinking spirits undiluted on an empty stomach, leads to the production of cirrhosis of the liver. So far as the facts are recorded with reference to this point in this collection of cases, this was the rule, without a single exception, among the patients addicted to spirit-drinking.

As regards the length of time during which the habit of spirit-drinking had existed, facts are noted in 18 cases. In all, the habit had existed for a long time. In one case the duration was 25 years; two patients stated that they had drank daily from boyhood; in 4 cases the duration was 10 years; in one case 8 years, and in the remaining cases it is simply noted that the habit had existed for several years, or for a long period. In 5 cases it is noted that, for some time prior to the development of hydro-peritoneum (in the one case two, and in the other case three months), the patients had drank comparatively little, having been so situated as not to be able to obtain liquor. This is interesting as going to show that other causes than the continued use of spirits may determine the epoch of the occurrence of dropsy. The kind of spirit drank is noted in 11 cases; and in 9 of these it was whiskey, in one case it was brandy, and in one gin and

brandy were drank. The preponderance of cases in which whiskey was used may be readily explained by the fact that this is the liquor commonly drank by persons in the station to which most of the patients belonged.

The foregoing results prove the agency of the prolonged use of spirits in the causation of hydro-peritoneum. They warrant the conclusion that when the dropsy depends on cirrhosis of the liver, the abuse of alcoholic stimulants is to be inferred. In all the fatal cases in which an autopsy was made, and the existence of cirrhosis thus positively ascertained, intemperance was known to have existed, save in the case of greatly contracted liver with old and firm peritoneal adhesions; in this excepted case the habits of the patient were not noted, but it may be presumed they were good. The diagnosis of hydro-peritoneum dependent on cirrhosis, thus, renders it altogether probable that patients have been addicted to the use of alcoholic stimulants; and, in hospital practice, it is generally safer to rely upon this law of etiology than to trust to the statements of patients when the habit of drinking is denied. This remark is especially applicable to females, whose statements with regard to habits, as experience has taught me, are much less reliable than those of male patients; the explanation, probably, being that the sense of shame in acknowledging vicious habits is greater in females than in males. The frequent occurrence of cirrhosis in drunkards is not new, but according to some writers this affection occurs not infrequently in those who are not intemperate. For example, Dr. Wood, in his work on Practice, says that a large proportion of the patients who have come under his notice have been of temperate habits. This assertion is at variance with the facts which have been presented, and I can only account for it by supposing that Dr. Wood has been deceived by patients with respect to their habits.

The inquiry arises here, How does alcohol act on the liver to produce cirrhosis? The explanation now commonly received is, that the alcohol passing readily into the portal blood, and carried at once to the liver, gives rise to inflammation of a low grade in the interlobular spaces, and that exudation occurs in this situation as a result of inflammatory action. This explanation is supposed to be sustained by the mode of drinking shown to conduce especially to cirrhosis, viz., taking raw spirits on an empty stomach. The explanation is plausible, but it must be considered as hypothetical. The facts are perhaps not less consistent with the hypothesis of cirrhosis being a degeneration taking its point of departure from the cells of the lobules.

What causes may co-operate with the abuse of alcohol in giving rise to hydro-peritoneum, and how is the affection to be accounted for in exceptional cases which end in recovery? There are reasons, derived from the clinical history of the affection, for believing that when the dropsy is dependent on cirrhosis, and the cirrhosis on the habit of spirit-drinking, auxiliary causes are often involved. Were it not so, the prognosis in cases



of dropsy in the intemperate would be even more unfavourable than it is. I may mention as a reason for believing that auxiliary causes are often involved, that, when the dropsical effusion begins, it is apt to increase rapidly, leading in a short time to distension of the abdomen. This would not be expected were the dropsy dependent exclusively on the cirrhosis which has been slowly going on for months or even years. It is not probable that the hepatic lesions undergo any marked increase at the time when dropsy occurs; what then determines the time of its occurrence, and why should it be developed to so great a degree in so short a period as is frequently observed? Another reason which may be mentioned is, the frequent occurrence of œdema of the lower extremities prior to the development of dropsy of the peritoneum. It will be seen when we come to consider the clinical history of the affection, that such is the fact. And this fact points to the existence of other causes of dropsy than the hepatic lesions. Finally, the occurrence of cases of hydro-peritoneum ending in recovery, cases which, although rare, do occur, is proof that the affection may arise independently of cirrhosis or any other irremediable structural lesions. I shall proceed to interrogate the histories with reference to any circumstances showing causative influences aside from the effects of alcoholic stimulants. I shall reserve the pre-existence of cardiac and renal disease for subsequent inquiry.

In 22 cases the histories show affections immediately antecedent to the dropsy, which may fairly be supposed to have operated as auxiliary causes. The facts in these cases are as follows: In 10 cases the dropsy followed intermittent fever, the patients having been subject to relapses of this disease for a greater or less period. In several of these cases the relapse immediately preceding had not been arrested, and the patients had suffered from the disease for several weeks. In 2 of these cases the dropsy was developed after the patients had been admitted into hospital. In one case the patient had, in addition, chronic ulcers of the leg dependent on syphilis, and in one case an attack of epidemic cholera had preceded the intermittent fever. In 3 cases the dropsy was preceded by hæmatemesis, the quantity of blood vomited being considerable. In 2 cases the patients were females, and had been confined shortly before the development of the dropsy. One of these cases ended in recovery, and in this case it was certain that the patient was not addicted to the use of alcoholic stimulants. Diarrhœa preceded the dropsy for several weeks in 2 cases. In one case the patient was admitted for dysentery, and the dropsy was developed after his admission. In one case the patient was admitted with pneumonia, and the dropsy was developed during convalescence from that disease. The patient also had chronic ulcers of the leg. In one case the dropsy was developed during convalescence from rheumatism; and in one case during convalescence from a fever of a month's duration, supposed to be typhoid fever. In one case the patient was admitted for a syphilitic eruption, and

was nearly ready to be discharged from the hospital when the dropsy made its appearance.

I think it is very probable that among the other cases than the 22 just referred to, antecedent affections, or circumstances may have existed in some, to which the dropsy was measurably attributable, for many of these the histories are defective as regards the events or condition of the patients prior to the development of the dropsy. But, making no account of this supposition, in nearly one-half of this collection of cases it may be assumed that the dropsy was proved by morbid conditions associated either with cirrhosis of the liver, or with whatever may have been the affection on which the dropsy was immediately dependent.

The antecedent affections were remotely concerned in the causation of the dropsy, acting, as may be supposed, by deteriorating the blood, weakening the circulation, or lowering the vigour of the body. Had these associated morbid conditions not existed, the occurrence of the dropsy might have been, to say the least, postponed. This is an important consideration in connection with the treatment, and the course of the disease in certain cases will be found to sustain the view just presented. It is worthy of note that in 5 cases patients were received into hospital for antecedent affections, the dropsy being developed after admission. It is to be added that the 22 cases are divided equally among those which were fatal and those which were non-fatal, *i. e.*, eleven in each division.

In the foregoing interrogation with respect to affections, etc., antecedent to the dropsy, I did not embrace cardiac and renal disease. In the cases in which disease of the heart or kidneys coexisted with the dropsy, it is fair to infer that the former preceded the latter; and it is also to be inferred that, in some of the cases, at least, the disease of the heart and kidneys contributed to the development of the dropsy. Directing attention, first, to the coexistence of disease of the heart, it has been seen that, of ten of the fatal cases in which post-mortem examinations were made (the condition of the heart being noted in only these ten cases), this organ was the seat of disease in but three cases. In one of these three cases pericardial adhesions, existing without enlargement, were probably innocuous; in the other two cases, the heart being enlarged, some influence in the production of the dropsy may be suspected. Of the cases, fatal and non-fatal, exclusive of those in which autopsies were made, the existence, or otherwise, of cardiac disease as determined by means of physical exploration, was noted in twenty-two. Of these 22 cases in 15 there were no physical signs of disease of the heart. Of the remaining 7 cases, in 4 a systolic murmur existed at the base, and the organ was not enlarged. Eliminating these 4 cases as cases in which the existence of organic lesions was doubtful, and in which the lesions were innocuous, if they existed, since there was no enlargement, there remain 3 cases. In these 3 cases there were mitral lesions and enlargement of the heart, and, hence, some influence in the production of the

dropsy may be suspected.<sup>1</sup> Thus, of 32 cases in which the condition of the heart was noted, as determined either by autopsical examination or by physical signs, in 5 cases only were there lesions involving enlargement of this organ. Here we have again exemplified the fact that disease of the heart is not associated sufficiently often with the morbid condition on which hydro-peritoneum is immediately dependent (in cirrhosis of the liver in the vast proportion of cases), to show the existence of any pathological connection between the two. When the two are associated, however, it is not improbable that the disease of the heart may act as an auxiliary cause in the development of the peritoneal dropsy.<sup>2</sup>

As regards coexisting disease of the kidneys, it will be recollected that of 11 autopsies in which the condition of these organs is noted, they were considered to be diseased in six. Hence it was surmised that there might have been in these cases some pathological connection between disease of the kidneys and cirrhosis of the liver, consisting either in a dependence of one upon the other to a greater or less extent, or in both being effects of the same causes. It was stated that the question of a pathological connection would again come up in connection with the cases in which autopsies are not embraced in the histories, inasmuch as the presence of albumen in the urine may be considered as evidence of disease of the kidneys, and *vice versa*. An interrogation of the cases with reference to albuminuria leads to the following results: in 18 cases (six fatal cases in which autopsies were not made and twelve non-fatal cases), the histories contain information on this point, and in not one of these cases was the urine found to be albuminous. In most of the other cases the urine was undoubtedly tested for albumen, and, had it existed, the fact would have been noted, so that the absence of albuminuria may be inferred in these cases. Of the 11 fatal cases in which autopsies were made, the kidneys, as just stated, were considered as diseased in 6. Of these 6 cases, the histories state that albumen was not found in 3; in 1 case the urine was slightly albuminous, and in 1 case the condition of the urine was not noted. Of the 5 cases in which autopsical examination revealed no disease of the kidneys, in all albumen was not present in the urine.

These facts are interesting in connection with the results of the examinations after death as regards disease of the kidneys. Taking albuminuria as

<sup>1</sup> In two of these 3 cases the ages were respectively 12 and 13 years.

<sup>2</sup> It is perhaps generally supposed that cirrhosis and disease of the heart are frequently associated. M. Becquerel, in his essay on cirrhosis (*Archives Générales*, 1840), stated that of 42 cases disease of the heart coexisted in 21. But of these 21 cases in 13 the cirrhosis was considered to be in the first degree, giving rise to trifling symptoms or none whatever. Dr. Budd (on diseases of the liver), says "it is perhaps fair to infer that, in some of these cases, M. Becquerel mistook for the first stage of cirrhosis the nutmeg appearance of the liver produced by partial congestion of the capillaries."



a diagnostic criterion of disease of the kidneys, the latter very rarely co-exists with hydro-peritoneum, or with the affection existing in the great majority of cases, viz. cirrhosis of the liver. The results of autopsical examinations and of examinations of the urine for albumen are not in accordance, the former going to show a large, and the latter a very small proportion of cases in which disease of the kidneys coexists. And of the 6 cases in which the kidneys were found to be diseased after death, in 3 the urine is noted to be not albuminous. It would seem, from these facts, as if disease of the kidneys is apt to coexist with hydro-peritoneum without being manifested by albumen in the urine.

On what pathological conditions is hydro-peritoneum dependent when it ends in recovery? Cirrhosis of the liver being an incurable lesion, when the dropsy is dependent thereon, recovery is hardly to be expected. It will be seen hereafter that, although this lesion in all probability exists, an apparent recovery sometimes takes place; that is, the dropsical effusion may be removed, and a reaccumulation not occur for a greater or less period. But the dropsy sometimes occurs under circumstances which render it probable that cirrhosis does not exist, and the recovery may be complete and permanent. I have met with a striking instance of this kind. The following are the important facts contained in the history:—

Mrs. W., aged about 24, had had two children, the youngest being 5 or 6 months old, which she was nursing. The patient came under my observation in March, 1861. She was under the care of Dr. Dudley, of Brooklyn. Enlargement of the abdomen had been first observed shortly before I saw her. The enlargement was evidently due to liquid in the peritoneal sac. The amount of liquid was sufficient to cause considerable enlargement, but not to render the abdominal walls tense. She complained of slight pain over the false ribs on both sides. The abdomen was not tender on pressure. The spleen appeared to be moderately enlarged; the liver seemed to be neither enlarged nor contracted. She had febrile paroxysms occurring irregularly, ushered in by chilly sensations and followed by sweating. These speedily ceased under the use of quinia in full doses. There was no œdema of face or limbs. The urine was not albuminous. She was moderately anæmic. There were no symptoms or signs of pulmonary or cardiac disease.

When the febrile paroxysms just mentioned were arrested, the dropsy diminished, but, in a short time, the accumulation of liquid was greater than before. Elaterium, given to produce free hydragogue operations, caused the dropsy temporarily to disappear, but the patient was greatly weakened by this remedy. She was treated with the iodide of potassium, and the citrate of iron and quinia, with generous diet. Under this treatment the affection remained stationary up to the latter part of June. She was then advised to begin to go out of doors, which, owing to general weakness, she did at first with considerable difficulty. From this time she

began to improve. Shortly afterward she went into the country and all remedies were discontinued. She continued to improve; and during the summer the dropsy entirely disappeared and she regained perfect health, which she has preserved up to this time. The patient was also seen in consultation by Prof. Willard Parker.

This case shows that hydro-peritoneum may occur, persist for several months, then disappear, and complete recovery ensue. The position and character of this patient rendered it certain that the usual source of cirrhosis, viz., use of alcoholic stimulants, was not involved in the causation. The supposition of subacute peritonitis is hardly admissible, in view of the absence of the local symptoms of inflammation and of pulmonary tuberculosis, together with the abundance of the liquid effusion. I confess an inability to offer any explanation in this or other similar instances; I cite the case chiefly in illustration of the fact that the affection may depend on causative conditions which are temporary and lead to no serious results. This fact is important to be considered in connection with the prognosis in certain cases; but, unhappily, examples like the one just cited are exceedingly rare. Doubtless the anæmia and general debility incident to lactation contributed to the development of the dropsy in the case just cited, but there must have existed, in addition, some pathological condition determining the seat of the affection.

It remains to consider the influence of age, sex, and civil condition on the causation. The age is stated in 43 of the cases. The greatest age is 69 years, one patient only being as old as this. The next highest is 60, the next 53, two patients being as old as the latter age. With the exception of one patient, who was 51, all the remainder were 50 or under. In 8 cases the ages were between 40 and 50; in 13 cases between 30 and 40; in 10 between 20 and 30; in one case the age was 12, and in another case the age was 13 years. In the two cases last enumerated, there existed mitral lesions with enlargement of the heart. Hydro-peritoneum, thus, occurs in the great majority of cases over 20 and under 50 years of age, the larger proportion of cases being between 30 and 40 years. These results are consistent with the fact that in most cases the affection is due to the more or less prolonged use of alcoholic stimulants. Habits of intemperance, if formed prior to 20 years of age, have not been sufficiently prolonged to produce cirrhosis, and it is rare for persons to become intemperate after the age of 50.

As regards sex, of 45 cases, 36 were males and 9 females. The large preponderance of the former is doubtless owing to the proportionately greater prevalence of intemperance among males than among females.

In the occupations of the patients nothing appears to show any special influence derived from this source. Sixteen were labourers, three were carpenters, two were brewers, and, among the remainder, the following occupations had each a single representative: storekeeper, carver, butcher, clerk,

tailor, and tinsmith. In the great majority of the cases having been observed in hospital practice, very few were from the higher walks in life. But that the great majority of cases were observed in hospitals, is owing to the comparative infrequency of the affection among the better class of patients in private practice. This is, doubtless, owing to the dependence of cirrhosis on spirit-drinking, and in a measure, at least, on a mode of spirit-drinking which is much more in vogue among the labouring than among the intemperate portion of the so-called better classes of society. The questions might be raised whether spirituous liquors of a bad quality may not especially lead to cirrhosis, and whether the use of such liquors may not be a reason for the prevalence of the affection among the labouring classes. In other words, is cirrhosis purely an effect of alcohol, or does it proceed, to a greater or less extent, from other principles contained in spirituous liquors? I must content myself with raising these questions. I am not prepared to answer them. I have heard it said by medical men in Kentucky that the pure form of whiskey made in that State never causes cirrhosis, but I cannot vouch for the correctness of this statement.

Leaving, now, the consideration of the causation of hydro-peritoneum, the conclusions drawn from the results of the analysis of the cases in this collection may be summed up as follows:—

The immediate causative condition in fatal cases pertains to the liver. This organ, as a rule, is contracted and diminished in weight; the surface may be either smooth or nodulated (hob-nailed), and it is sometimes notably deformed. Contraction and deformity may be associated with extensive peritoneal adhesions; the changes in size and form being, then, in a measure at least, attributable to external pressure.

The condition of the liver, giving rise to hydro-peritoneum, except in cases in which it proceeds from external pressure, is generally a result of the prolonged abuse of alcoholic stimulants; and this result follows the habitual drinking of spirits, especially when taken raw, or but little diluted, upon an empty stomach.

Although the spleen is enlarged in a certain proportion of cases, in connection with the altered condition of the liver generally known as cirrhosis, there is no ground for supposing that the splenic enlargement is a cause of the dropsy. It may be doubted whether enlargement of the spleen alone ever gives rise to hydro-peritoneum.

Disease of the heart is found too rarely associated with cirrhosis of the liver to infer any relation of cause and effect between the two affections. When the two are associated it is probably a mere coincidence. Coexisting disease of the heart, however, may contribute to the dropsy as an auxiliary cause. Existing independently of disease of the liver, disease of the heart gives rise to hydro-peritoneum only as an element of general dropsy.

Disease of the kidneys is associated with cirrhosis oftener than disease of the heart; but whether any relation of cause and effect exists between



the two affections, or whether both proceed from the same remote cause or causes, is to be determined by the analysis of a larger collection of cases. Coexisting disease of the kidneys may contribute indirectly to hydro-peritoneum by inducing hydræmia and impairing the vital forces. Existing independently of disease of the liver, disease of the kidneys gives rise to hydro-peritoneum only as an element of general dropsy.

Various affections, coexisting with cirrhosis of the liver, such as intermittent fever, hæmatemesis, diarrhœa, may determine the epoch when hydro-peritoneum becomes developed, or tend to increase the dropsical effusion. The dropsy may follow convalescence from some disease, such as dysentery, typhoid fever, and pneumonia. It may occur during lactation, or shortly after confinement. The dropsy, under these circumstances, is determined or promoted in consequence of the effects on the blood and vital forces.

Hydro-peritoneum occurs, although very rarely, when not dependent on cirrhosis of the liver, or any other incurable lesions, cases ending in recovery. The morbid condition or conditions on which the dropsy is immediately dependent in these cases must be left unexplained.

Hydro-peritoneum occurs much oftener among males than females. The larger proportion of patients are between 30 and 40 years of age; it occurs very rarely under 20 or over 60 years. Its causation is not specially favoured by any particular occupation.

**SYMPTOMATOLOGY OF HYDRO-PERITONEUM.**—Of the important symptoms which make up the clinical history of hydro-peritoneum, the first claiming notice are those which relate to the abdomen and digestive system. After having considered these, the symptoms referable to other anatomical systems, viz., tegumentary, circulatory, urinary, and nervous,<sup>1</sup> will respectively claim attention.

*Symptoms referable to the abdomen and digestive system.*—Abdominal pain rarely precedes or accompanies the dropsical effusion. In four cases only have I noted the existence of pain; situated, in two cases, in the right hypochondrium, and in the other cases more diffused. In most of the histories nothing is stated respecting this symptom; but in several the absence of pain is noted. Transient colic pain would not be deemed of sufficient importance to record; but this is not of frequent occurrence. In one case a sense of soreness in the abdomen preceded the dropsy. In none of the other cases is it stated that soreness, or tenderness on pressure existed.

<sup>1</sup> With respect to the consideration of symptoms, I wish to repeat, that several of the histories are incomplete, the cases having been only for a time under observation, and the records sometimes not embracing all details even when the cases were observed during the whole progress of the affection. The enumerations are to be considered as only approximations to accuracy as regards the frequency with which the different symptoms occur. In view of the fact just stated, I shall devote but a little space to the symptomatology.

Patients sometimes shrink when deep, strong pressure is made with a view to determine whether the spleen or liver be enlarged; but, as a rule, no more tenderness or soreness exists than is attributable to the tension of the abdominal walls from the pressure of the liquid. The absence of pain, soreness, and tenderness, is one of the points in the differential diagnosis of hydro-peritoneum and peritonitis with effusion. Another point is the absence of tension of the abdominal walls from tonic rigidity of the muscles. In hydro-peritoneum the walls are tense only as a result of distension from the amount of effused liquid. I may mention here that pain in the right shoulder is noted in two cases.

The enlargement of the abdomen from the accumulation of liquid, was either great or considerable in most of the cases. In four cases only was the quantity of liquid moderate. It may be laid down as a rule that, when hydro-peritoneum occurs, the dropsical effusion almost invariably increases so as to produce notable distension, and in the large proportion of cases the abdominal walls become more or less tense. Another interesting fact with regard to the effusion is, the rapidity with which it takes place. In the majority of cases, when the dropsy once commences, it goes on rapidly, and in a short time the abdomen becomes considerably or greatly enlarged. In the abstracts of fifteen of the histories made for this analysis, the rapid accumulation of liquid is stated; that is, considerable or great enlargement taking place within a period varying from two months to a few days. In one case the effusion increased from a moderate to a large amount in the course of a few hours, occasioning sudden dyspnoea to such an extent as to require immediate tapping; and this occurred a second time in the same case. I have already alluded to the frequency with which the dropsical effusion becomes rapidly large in amount, as a fact going to show the co-operation of other circumstances than the hepatic obstruction due to the structural lesions in cirrhosis, in the causation of the dropsy. These lesions are doubtless slowly produced, and it is not probable that they undergo a sudden and rapid development at the time when the dropsy occurs and is rapidly increasing. Is it not probable that, after a certain amount of effusion has taken place, the pressure of the liquid upon the liver, by adding to the obstruction to the portal circulation in this viscus, increases the effusion? This question will again come up in connection with the non-occurrence of effusion, in certain cases, for a greater or less period after the liquid has been removed by tapping.

It has been seen that in all the fatal cases but one in which examinations after death were made, the liver was more or less diminished in volume. In the histories of the remainder of the cases, fatal or non-fatal, enlargement of the liver is noted in two cases. In these cases the lower margin extended  $2\frac{1}{2}$  or 3 inches below the false ribs, as ascertained by manual examination through the abdominal walls. Enlargement of the liver, if the abdomen be not greatly distended, may generally be ascertained by palpa-

tion, and had it existed in other cases the fact would doubtless have been noted. Contraction of the liver, on the other hand, cannot be so well determined by manual examination. Is it not determinable by percussion? With regard to the answer to this question, I believe the general impression to be incorrect. The space between the pulmonary resonance above and tympanitic resonance from the transverse colon below, is supposed to represent the vertical diameter of the liver. That this is not so, is easily demonstrated in certain cases in which enlargement of the liver is perceptible by the touch. I have been accustomed to point out at the bedside a discrepancy, sometimes of several inches, between the positive evidence afforded by palpation of the situation of the lower margin of the liver, and the apparent evidence afforded by percussion. The tympanitic resonance from the colon may be propagated for a considerable space above the lower margin of the liver, and without any appreciable diminution of intensity. This resonance is not reliable as evidence of the situation of the lower margins of the liver. The distance between the pulmonary and tympanitic resonance is only an approximation to the vertical diameter of the organ. Not infrequently when the liver is contracted, the pulmonary and tympanitic resonance almost and even quite meet. I have for some time ceased to consider as accurate the measurement of the liver by means of percussion.

The same remarks will apply measurably to the spleen. The evidence afforded by tympanitic resonance of the lower and anterior borders of this organ is unreliable for the same reason, viz., the organ transmits readily tympanitic resonance. The upper border of the organ as well as that of the liver, is indicated by the pulmonary resonance, which is not, like the tympanitic, propagated more or less beyond the border. Enlargement of the spleen, if considerable, can generally be felt. Exclusive of the cases in which examinations were made after death (to which reference has already been made), this organ is noted as enlarged in only one case. Directly after tapping, when the abdominal walls are greatly relaxed, explorations for the liver and spleen may be made with most facility. At this time, the liver may be felt to be abnormally hard and nodulated even when contracted, by the fingers pressed up and under the false ribs.

Hæmatemesis is noted in six cases. But in three of these cases it preceded the development of the dropsy, and did not recur afterward. In two cases it occurred repeatedly. Both of the latter cases were fatal; indeed, in all these cases, save two, a fatal result has taken place; while the cases under my observation and the two excepted cases have recently come under observation, and will probably end fatally ere long. In two of the cases melæna also occurred, and in two cases melæna occurred without hæmatemesis. Vomiting (exclusive of hæmatemesis) is noted in only two cases, and in both of these it was a prominent symptom. Diarrhœa is noted as a symptom, more or less prominent, in eight cases. On the other hand,



constipation is noted in several cases; but in the larger number of cases neither of these symptoms was present. • Diarrhœa can hardly be regarded as a favourable symptom in cases of hydro-peritoneum; in most of the cases in which it occurred, the progress of the affection was unfavourable. It might be deemed *à priori* a desirable event, so far as the dropsy is concerned, the congested portal vessels being relieved, in a measure, by transudation through the intestinal mucous membrane; the mode of relief, in fact, being the same as when hydragogue cathartics are given. Clinical observation, however, shows not only that diarrhœa occurs oftener in cases which progress unfavourably than in those which pursue a favourable course; but that measures which succeed in relieving the diarrhœa appear, sometimes at least, to exert a favourable effect on the dropsy. In one of the cases it is noted that the dropsy diminished notably after a troublesome diarrhœa had been relieved at one time by bismuth, and subsequently by opium.

Loss of appetite and disinclination for food existed in many of the cases while the patients were under observation, and especially when the disease was progressing toward a fatal termination. Some patients retained a tolerable and some a good appetite. Generally, when the dropsy was sufficient to distend the abdomen, patients complained of a sense of fulness after taking food. In several instances this was a source of complaint when the abdomen was distended, and, after the liquid was removed by tapping, the patients were able to eat freely without inconvenience. In the history of one case it is noted that the gums were spongy, and hemorrhage occurred in this situation as in scorbutus. The superficial veins of the abdomen in most of the cases were more or less enlarged. The cases differed in this regard, but, from a survey of the histories, nothing appears to invest this symptom with much importance.

*Symptoms referable to the integument.*—Under this head I shall embrace *œdema*. And, as regards this symptom, the facts developed by an analysis of these cases conflict with certain commonly received opinions. More or less *œdema* of the lower limbs, as is well known, coexists often with hydro-peritoneum. But it is supposed to follow the latter, and to be proportionate to the amount of abdominal distension. In a large proportion of these cases *œdema* of the lower limbs preceded the enlargement of the abdomen. Of twenty-one cases, the histories of which contain distinct information on this point, in eleven *œdema* of the lower limbs had precedence. It has been stated (*vide* treatise by Dr. Budd) that when *œdema* of the lower limbs precedes the peritoneal dropsy, the existence of cardiac or renal disease is to be inferred. The facts developed by this analysis are opposed to this opinion. Of the eleven cases in which *œdema* of the lower limbs preceded the hydro-peritoneum, five were fatal and six non-fatal. In not one of the six non-fatal cases was the urine albuminous, or were there present physical signs of disease of the heart. Autopsies were made in all

of the five fatal cases. In three of these the heart and kidneys were found to be healthy; in one case old pericardial adhesions existed, and the weight of the heart was 14 oz.; in the other case there was granular degeneration of the kidneys. In the latter case, œdema of the face existed together with œdema of the lower limbs; but in all the other cases, fatal and non-fatal, the œdema was confined to the lower limbs. It follows, from these facts, that in about one-half the cases in which hydro-peritoneum and œdema of the lower limbs coexist, the latter precedes the former; and that, when this is found to be so, it is not to be inferred that the dropsy is associated with renal or cardiac disease. How is this precedence of œdema to be explained? The explanation which seems to me probable is, that, in addition to the immediate cause of the peritoneal dropsy (generally cirrhosis of the liver), other causes favouring dropsical effusion exist in these cases—causes which impair the condition of the blood, or weaken the forces carrying on the circulation. I have had occasion already to offer this explanation in endeavouring to account for the occurrence of peritoneal dropsy at a particular epoch, and for the rapid increase of the dropsy after it commences. It is possible that a small amount of abdominal effusion, not enough to produce any marked enlargement of the abdomen, may involve pressure on the iliac veins to obstruct the return of blood from the lower limbs sufficiently to give rise to the œdema. It is doubtless chiefly in consequence of this pressure and obstruction that œdema of the lower limbs is produced in the cases in which it occurs subsequently to the abdominal distension. It is worthy of note, that in one of the cases in which œdema of the lower limbs preceded the hydro-peritoneum, it disappeared after the latter had become developed.

œdema of the face, upper extremities and chest, in other words, anasarca, does not belong to the clinical history of simple hydro-peritoneum. Of thirty-nine cases, in the histories of which information on this point is contained, anasarca existed in only four; and in each of these four cases save one, the œdema of the upper part of the body was slight. In each of these cases either cardiac or renal disease existed, to wit, in the disease of the kidneys alone, in one mitral lesion and enlargement of the heart alone, and in one old pericardial adhesion, together with disease of the kidneys. In some of the cases in which the œdema was limited to the lower part of the body, the swelling of the limbs was very great, extending also sometimes to the genital organs. The appearance of the patient in these cases presented a remarkable disproportion between the lower limbs with the abdomen and the upper part of the body—the latter greatly emaciated, and the former enormously enlarged. But in these cases the heart and kidneys are usually free from disease. The existence, however, of œdema in the upper part of the body, *i. e.*, in the face, upper limbs, or over the sternum, is evidence of coexisting disease of the heart or the kidneys, or of both these organs.

Hydro-peritoneum, even when the abdominal distension is great, is not always accompanied by œdema. In nine cases œdema did not exist while the cases were under my observation; and in some of these cases the abdomen was greatly enlarged by the amount of dropsical effusion.

Cholæmia or icterus may be included under this head. This symptom is rarely present in cases of hydro-peritoneum. Of the 46 cases it is noted in the histories of 7; and in one of these cases it preceded, but did not accompany, the dropsy. It is not a symptom of favourable omen. Of the 7 cases, 6 ended fatally under my observation. In none of the cases was the yellowness of the conjunctiva and skin intense, but it was slight in all, and in the non-fatal cases it was extremely slight. The rare occurrence of jaundice in cases of hydro-peritoneum dependent on cirrhosis, is one of the facts going to show that the bile pigment is a product of the secretion of the liver, not preformed in the blood, and that the yellowness of the tissues denotes the resorption of bile. In certain of the cases of cirrhosis in which the liver is greatly contracted and deformed, the secretory function of the organ must be impaired to a considerable extent; and jaundice would be expected to occur frequently, instead of very rarely, if this symptom depended on the accumulation in the blood of bile pigment in consequence of its non-secretion by the liver.

Pallor of the prolabia and skin, denoting anæmia, existed more or less in the great majority of the cases. Some of the cases were characterized by a marked anæmic aspect. In general, this aspect was marked in proportion as other symptoms showed the condition of the patient to be unfavourable as regards recovery or improvement. This symptom, associated with other symptoms which have been considered, gives rise to appearances which are diagnostic and striking, viz., pallor of the countenance, emaciation of the face and upper extremities, distension of the abdomen, with enlarged superficial veins, and œdema of the lower extremities. When this group of appearances is presented, a glance suffices to determine the disease, and the hopeless condition of the patient.

*Symptoms referable to the circulation.*—The coexistence of disease of the heart has been already considered. I have only to notice, under this head, the condition of the circulation as represented by the pulse. The state of the pulse is noted in 25 cases. But as the histories consist of notes made at irregular intervals, and in many of the cases do not embrace the whole duration of the disease, I have not data for determining the variations as regards this symptom, at different periods in the same case. The facts which were noted show the absence of febrile movement in cases of hydro-peritoneum, except there be some superadded or intercurrent affection. In some cases the pulse was not accelerated; in other cases it was more or less frequent. It was generally small, soft, and feeble. When frequent, the frequency was of that kind which denotes diminution of the vital forces or asthenia. A notably small, frequent, and feeble pulse in



this affection may be considered as evidence that the case is advancing toward a fatal termination.

*Symptoms referable to the urinary system.*—My records contain very little respecting the urine beyond the presence or absence of albumen. As regards albuminuria, the facts have been already stated. It is noted frequently that the quantity of urine was small; but in several cases it was abundant. A large increase, occurring always after tapping, is noted in one case in which the abdomen was punctured thirty times. In one case the urine was habitually of a bright vermilion colour as if it contained blood. The microscope, however, showed absence of the red globules, and no albumen was present. The urates were very abundant in this case, the deposit being of the same colour as the liquid. The appearances corresponded with those described by Golding Bird as belonging to purpurine. Without a microscopical examination, the colour might be considered as denoting hæmaturia. Had a similar condition of the urine existed in any of the other cases while they were under my observation, it could hardly have failed to attract attention, and would have been noted.

*Symptoms referable to the nervous system.*—In the great majority of cases no important phenomena pertaining to the nervous system are noted. The mode of dying is usually by slow asthenia; if, however, the accumulation of liquid be very great, or if it take place very rapidly, death may be due to the extent to which the respiratory function is compromised. The mental functions are generally preserved up to the last moments of life. To the latter rule there are occasional exceptions. In three cases I have noted the occurrence of delirium several days before death. In one case the delirium was hilarious; in one case the patient appeared bewildered, and in one case the patient lapsed from childishness into imbecility. These cases ended in coma. In three other cases the patients died comatose. In one case convulsions occurred followed by coma.

These few facts are all which I have noted. It is certain that notable disturbance of the nervous system does not occur until the affection approaches a fatal termination. What is the rationale of the delirium, coma, and convulsions which are sometimes observed? This is an interesting inquiry. My facts do not enable me to answer it. These phenomena may arise from the retention of the blood of the excretory principles contained in the bile. Cholesterine is doubtless one of these excretory principles; and perhaps there are others not yet observed. Here is a rich field for clinical research. The distinctive features of cholesteræmia have not as yet been ascertained. I have been led to suspect that this kind of blood-poisoning occurs especially in certain cases of fatty liver. But the coexistence of disease of the kidney may explain the occurrence of the nervous phenomena just mentioned. It is a question to be settled by an accumulation of facts whether these phenomena are due to uræmia, or

to the non-elimination of biliary principles, or to both these pathological conditions.

**MANAGEMENT OF HYDRO-PERITONEUM.**—In the management of hydro-peritoneum a prime object is to effect the removal or diminution of the peritoneal effusion. This object is important in proportion to the distress and danger arising from the amount of effusion. It is desirable, however, when the amount is not great enough to occasion distress or danger. There is no foundation for the idea that the pressure of a certain quantity of liquid tends to restrain further effusion; on the contrary, clinical observation shows rather a tendency of the pressure of liquid to accelerate the progress of the dropsy. Whether the quantity be large or moderate, therefore, its removal or diminution is a therapeutic indication. The means for effecting the object are either direct or indirect. It is effected directly by tapping, and it may be effected indirectly by measures which increase the density of the blood by lessening the proportion of water, and thereby favouring the endosmosis or absorption of the dropsical effusion. The measures for this purpose are diuretic remedies and hydragogue cathartics. These will claim separate consideration.

*Diuretic Remedies.*—In 13 of my cases diuretics were employed to a greater or less extent. In 8 of these 13 cases no effect upon the dropsy was produced, the amount of liquid either remaining stationary or increasing. The quantity of urine was much increased in 2 cases, the quantity in the other cases being either slightly increased or unaffected. Five of these 8 cases ended fatally under my observation. In 5 of the 13 cases, improvement, as regards the dropsical effusion, took place under the use of diuretics. In 2 of these 5 cases the dropsy diminished under the use of diuretics given for a short period, but the diminution was not less after the diuretics were discontinued, and a tonic remedy substituted. In two cases the diuretics constituted the whole treatment, and the improvement was progressive and marked. In one case after tapping the patient took a solution of the bi-tartrate and the nitrate of potassa, with digitalis, for ten weeks, and during this period there was no return of the dropsy. In this case a purge of calomel and jalap was given weekly, and the diet consisted mainly of toast and cider. This plan of treatment was recommended by some one not connected with the hospital, and adopted by the patient with my consent. At the end of ten weeks the dropsy reappeared, and the case ended fatally. It is to be added that during the ten weeks of exemption from dropsy, the quantity of urine was small.

The diuretic remedies used were as follows: nitrate of potassa alone in 3 cases; do. with bi-tartrate of potassa in 1 case; squill, juniper and the nitrate of potassa in 1 case; nitrate and bi-tartrate of potassa and digitalis in 1 case; bi-tartrate of potassa in 2 cases; acetate of potassa in 1 case; digitalis and squill in 1 case; bi-tartrate of potassa, squill, digitalis and

blue mass in 1 case; bi-tartrate of potassa and digitalis in 1 case; and in 1 case the diuretic remedy is not noted. In the 5 cases in which improvement took place under the use of diuretics, the remedies were as follows: nitrate of potassa in 2 cases; nitrate and bi-tartrate of potassa with digitalis in 1 case; bi-tartrate of potassa with squill, digitalis and blue mass in 1 case, and the acetate of potassa in 1 case. Squill, iodine and digitalis were used by means of external application in 2 cases, but with little or no effect.

These facts by no means afford much evidence of the efficacy of diuretics in the management of hydro-peritoneum; they render it probable, however, that, while in the majority of cases no benefit is derived from these remedies, in some cases they contribute to the object under consideration. This conclusion I suppose to be in accordance with the views generally held by physicians. The difficulty of exciting the action of the kidneys in this affection is, in part at least, explicable. Obstruction to the passage of the portal blood into the general circulation (which occasions the dropsy), prevents the free transportation of the remedies to the kidneys. Moreover, the pressure of the effused liquid on the vessels connected with the kidneys, and also on the kidneys, lessens their functional activity. As proof of this, the quantity of urine is observed to increase notably in some cases immediately after tapping.

With respect to the employment of diuretics, an important consideration is, they may be tried with entire safety, if properly prescribed and not continued too long, since they do not cause much perturbation nor exhaust the vital powers.

*Hydragogue Cathartics.*—Hydragogues, in doses sufficient to produce abundant liquid dejections, entered into the treatment in seventeen cases. Elaterium is noted as the remedy employed in all save two cases, in which the articles used are not stated. It was probably employed in the latter cases also. Seven of these cases are among the fatal, and an equal number among the non-fatal, cases. In nine of the seventeen cases no appreciable benefit was derived from this treatment. In the remaining eight cases the results were as follows:—

CASE 1.—The dropsical effusion was diminished, but otherwise no improvement. This case ended fatally.

CASE 2.—Diminution of dropsy, but otherwise no benefit. A fatal case.

CASE 3.—Dropsy diminished, but subsequently diuretics were substituted, and general improvement under the use of the latter.

CASE 4.—Diminution of dropsy; subsequently convulsions and sudden death.

CASE 5.—Diminution of dropsy; subsequently diuretics, and removal of the effusion.

CASE 6.—Diminution of dropsy, and temporary general improvement; subsequently elaterium was repeated without benefit.

CASE 7.—Immediate and almost complete removal of the dropsy, but it



shortly returned, and the remedy occasioned so much exhaustion that it was not repeated. Subsequently this patient completely recovered.

CASE 8.—Marked diminution of the dropsy, but it returned and increased when the hydragogues were discontinued.

These results contain very little evidence in behalf of the usefulness of hydragogue cathartics in hydro-peritoneum. The dropsy, in some cases, is diminished by their use, and in a small proportion of cases the diminution is marked. But, generally, little is accomplished, and that little only for a brief period. Owing to the disturbance and prostration caused by their prolonged use, they cannot be continued long enough to effect the object, even when we might hope that, if borne, they might prove effectual. In the majority of cases, if continued, or often repeated, they do harm, rather than good. In short, I believe that, as a rule, they should not enter largely into the treatment.

As one of the indirect means of effecting the removal or diminution of the dropsical effusion, restriction of the amount of ingested liquids is to be mentioned. This is important in conjunction with other indirect means, or with the direct method of treatment. The addition of water to the blood is to be limited as far as practicable, and, for this end, patients should be enjoined to take no more drink of any kind than is consistent with a due regard to the parts of the economy. This part of the management is often imperfectly carried out, because many patients lack the necessary determination and perseverance to conform to our injunctions.

*Tapping.*—In twenty of the forty-six cases tapping was resorted to. Of these twenty cases, eight are among those which proved fatal under my observation. The operation was performed but once in eleven cases; thrice in four cases; four times in one case; six times in one case; repeatedly (the number of times not stated) in two cases, and thirty times in one case. As the propriety of the operation is a point of much practical importance, I shall present briefly the facts bearing upon its influence on the affection in all of the twenty cases.

In five of the cases the patients were tapped within a few weeks or days of the date of death. The operation in all these cases, save one,<sup>1</sup> was performed for the sake of immediate relief, without any expectation of permanent benefit. Immediate relief followed in all the cases. There is no reason to think that life was shortened in any of the cases; but, on the contrary, it was, probably, in some at least, prolonged by the operation. Fatal prostration or sinking did not occur in any instance. In the remainder of the fatal cases the facts were as follows:—

CASE 1.—The patient was tapped six times in the course of two months,

<sup>1</sup> In the excepted case there was no return of the dropsy at the end of three weeks, and the patient seemed quite well. Death occurred in this case instantly while the patient was conversing cheerfully, and the cause of the sudden death was not ascertained.

and was then removed by his friends from the hospital in order to escape a *post-mortem* examination. He died shortly after leaving the hospital.

CASE 2.—Tapping was performed twice in three weeks. After the second tapping there was no return of the dropsy for ten weeks, and the patient improved greatly in appearance and strength. During this ten weeks the patient took daily small doses of the nitrate and bi-tartrate of potassa. He was purged once a week with calomel and jalap, and his diet was toast and cider. At the end of the ten weeks the dropsy returned, and he died shortly afterward. The autopsy in this case revealed a contracted hob-nailed liver.

CASE 3.—The tapping was repeatedly performed during the last five months of life. The immediate relief was marked, but the liquid speedily reaccumulated.

CASE 4.—The tapping was performed twice during the last two months of life with immediate relief, but the dropsy soon returned.

The facts in ten non-fatal cases were as follows :—

CASE 1.—Tapped repeatedly during five months, and, when last seen, the abdomen was distended with liquid, and there existed much emaciation and debility.

CASE 2.—Tapped with great immediate relief. Liquid flowed from the puncture for several days. Twenty-two days afterwards the patient had no reaccumulation of liquid, and was discharged from the hospital.

CASE 3.—Tapped, and liquid flowed from the puncture for several days. Four months afterward, when last seen, there had been no return of the dropsy, and the patient reported quite well.

CASE 4.—Tapped with great relief. Three months afterward, when last seen, no return of dropsy; the patient reporting and looking well.

CASE 5.—Tapped twice in course of three or four months. Subsequent history not known.

CASE 6.—Tapped, for the first time, eighteen months before the case came under my observation. Prior to the dropsy the patient had hæmatis. The dropsy had existed for two or three months before the first operation, and had been once removed by hydragogue cathartics. In the course of eighteen months tapping was repeated thirty times. The patient had come to regard the operation as a trivial affair, and the day after its performance was accustomed to go about as usual. When I saw him he was able to take pretty active exercise, but was quite anæmic; the abdomen was then filled, and the abdominal veins largely dilated. The subsequent history is not known.

CASE 7.—The patient, when admitted into hospital, was greatly prostrated, and tapping was resorted to when the case seemed to be near a fatal ending. The immediate relief was marked, and the patient's life appeared to be saved by the operation. Improvement was progressive, but after a month the abdomen filled rapidly, and tapping was again employed. The operation was repeated twice during the following month, and the patient then left the hospital extremely feeble.

CASE 8.—Tapped six months ago, and up to the present time there has been no return of the dropsy. The health of the patient is now good.

CASE 9.—Tapped a few weeks ago, and the dropsy is now returning.

CASE 10.—Tapped quite recently with marked immediate relief.

From the foregoing facts I draw the following conclusions: 1. Tap-



ping may be resorted to as a palliative measure when the condition of the patient is such that only temporary relief is to be expected. We need not be deterred from the operation by the debility of the patient. So far as these facts are concerned, they afford no support to the notion that removing the liquid will tend to produce exhaustion in consequence of more rapid subsequent effusion. On the contrary, life appears to be prolonged by the operation under these circumstances. 2. In a certain proportion of cases the dropsy returns more or less quickly, and if this plan of treatment be adopted, it may be necessary to repeat the operation many times. The repetitions, however, are innocuous. Of this, the case in which it was performed thirty times in 18 months is a striking illustration. 3. In some cases the dropsy does not return for a considerable and even a long period after the operation. Of this No. 2 of the fatal, and Nos. 3, 4 and 8 of the non-fatal, cases are examples, the dropsy in the first case not returning for ten weeks, and in the other three cases not having returned at the end of 4, 3 and 6 months.

As regards the employment of tapping, the views inculcated by medical writers and generally entertained are, that it is to be resorted to only when the abdominal distension occasions great distress or danger, and not until the indirect means of diminishing the effusion have been thoroughly tried; that the effusion generally goes on more rapidly after the liquid has been removed by puncture, than while it was allowed to remain, or when it is lessened by diuretics and hydragogue cathartics, and that the operation involves danger if the system be much prostrated. I have been led to believe that these views are erroneous. By tapping we effect promptly, without perturbation and without impairing the vital powers, the same object which we strive to accomplish by indirect means when we employ diuretics and hydragogue cathartics, measures which are generally ineffectual, which disturb the digestive functions, and enfeeble the powers of life. The operation is trivial, and involves little or no risk of accidents or of peritoneal inflammation. There is no danger from increased rapidity of effusion directly after the operation. The patient is spared not only the inconvenience and distress, but the permanent injury caused by the prolonged pressure of the liquid upon the abdominal and thoracic viscera, and he is in a condition more favourable for other remedies than those which have special reference to the removal or diminution of the dropsy. Clinical experience shows that in some cases, even when the dropsy is dependent on cirrhosis, the liquid does not accumulate for weeks and months after the operation. It remains to be ascertained if in any cases in which it has not yet returned, the exemption will prove to be permanent. A larger accumulation of cases in which the operation was resorted to early is desirable; but upon rational grounds and with my present amount of experience, it seems to me judicious to resort to tapping so soon as the accumulation of liquid is sufficient to occasion much inconvenience, adopting this direct method in lieu of the

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indirect means, provided the latter do not happen to prove immediately efficacious, and repeating the operation whenever the abdomen becomes again distended to the same extent.

The management of hydro-peritoneum involves measures other than those which relate specially to the object thus far considered, viz., the removal or diminution of the dropsical effusion. In studying my cases with reference to causation, I was led to conclude that the dropsy is often measurably due to causes which are remotely operative, that is, causes co-operating with the pathological condition on which the dropsy is immediately dependent. These remote or accessory causes act by impoverishing the blood, and impairing the forces which carry on the circulation. We may be able to control these causes and remove their effects, although the immediate cause of the dropsy be beyond our control. The latter may not alone be sufficient to perpetuate the dropsy, when divested of the remote or accessory causes. Here, then, is an important part of the management. And the first point relates to the habit of spirit drinking. This being the special cause of the lesion which is the proximate pathological condition in the majority of cases (cirrhosis), the abatement of this cause will be likely to prevent the further progress of the lesion. But, aside from this result, the habit of spirit drinking favours the occurrence of dropsy by disturbing the digestive system, and inducing general debility. I shall presently cite two cases in which the interruption of this habit was alone or chiefly sufficient for the disappearance of the dropsy. If the patient be not much debilitated, it is perhaps best that alcohol in any form be abstained from; but if sustaining measures are called for, wine or malt liquors should, if practicable, take the place of spirit; and if the interdiction of the latter cannot be enforced, the importance of not taking it upon an empty stomach should be impressed.

Tonic remedies have appeared to me to be useful in the management of hydro-peritoneum. The citrate of iron and quinia is the remedy which I have almost universally given. In seven of my cases the histories render it probable that this remedy contributed to the improvement which took place. The facts bearing on the supposed utility of this remedy in these cases are as follows:—

CASE 1.—The patient was discharged from hospital free from dropsy, and reporting well enough to return to work; the medicinal treatment having consisted of the citrate of iron and quinia, with the exception of a diuretic for ten days.

CASE 2.—Precisely the same facts, only the diuretic was continued but nine days.

CASE 3.—After free purging with elaterium, the only remedy employed was the citrate of iron and quinia. Under this remedy there was marked improvement, and the patient reported well enough to be discharged, but he was not entirely free from the dropsy.

CASE 4.—No therapeutic measures were employed, save the use of the citrate of iron and quinia. The patient was discharged from hospital free from dropsy.

CASE 5.—Great improvement, the dropsy having nearly disappeared when the patient was last seen. And in this case the quinia and iron, and the tincture of sesquichloride of iron, with bismuth and opium for diarrhoea, constituted the treatment.

CASE 6.—After tapping, the citrate of iron and quinia constituted the treatment. Patient discharged from hospital free from dropsy, and quite well, four months after the tapping.

CASE 7.—The dropsy disappeared in a few weeks, without tapping, under the use of the citrate of iron and quinia; neither diuretics nor hydragogues having been given, and the patient remained free from the dropsy when last seen, two months after coming under observation.

We cannot estimate, in these cases, the importance to be attached to the interruption of the habit of spirit-drinking, and to better hygienic conditions in hospitals than those to which the patients may have been previously accustomed. It is fair to presume that the tonic medication was not without some effect. I should, perhaps, speak more confidently of its value, were it not that improvement and recovery may take place under hygienic treatment without any medication. Of this my cases furnish the two following illustrations:—

CASE 1.—The patient was admitted into hospital a month after the dropsy commenced. The abdomen was greatly distended. He was at first purged with elaterium, but as the purging was not followed by any reduction of the dropsy, and occasioned much prostration, this remedy was not repeated, and a quarter of a grain of the extract of belladonna, three times daily, was prescribed as a placebo. I intended to resort to tapping, but the operation was deferred for several days, and, in the meantime, there was distinct general improvement with diminution of the size of the abdomen. The dropsy rapidly disappeared, and in a short time he reported well enough to return to work and was discharged. The extract of belladonna was the only remedy employed in this case.

CASE 2.—This case has been already given (case of Mrs. W., *vide* page 319) as an illustration of complete recovery, the patient having been in excellent health for more than eighteen months. After the employment of elaterium, iodide of potassium and the citrate of iron and quinia, the dropsy remaining unaffected, she recovered on going into the country and taking out-door exercise, all medication having been suspended.

Of the use of mercury in hydro-peritoneum I can say nothing from my own experience. In some of my cases mercurialization had been produced, prior to their coming under my care, without any benefit. I should expect only injury from a remedy which induces anæmia.

In cases in which diarrhoea exists, a practical point relates to the propriety of endeavouring to relieve this symptom. Does not its continuance tend to lessen the dropsy? It is generally supposed to have this effect, and therefore its continuance is regarded as desirable. I have been led to doubt the correctness of this opinion, and to think that, in some cases at least, by increasing the general debility, diarrhoea contributes to the increase of the dropsy. In one of my cases the patient was progressively improving



under tonic medication, but was troubled with chronic diarrhœa, and I resolved to see what would be the consequence of arresting the diarrhœa. Bismuth, and afterward opium, were prescribed for this end, and proved effectual. The improvement in this case was not less progressive after the diarrhœa was arrested than before.

Another practical point relates to the treatment of œdema of the genital organs by scarification. The œdema in this situation sometimes becomes excessive, but the parts cannot be scarified without risk of serious consequences. Two of my cases illustrate the correctness of this statement. In one of these cases mortification ensued, and the patient died before sloughing took place. The other case came under observation after sloughing of the greater part of the scrotum had taken place, leaving the testicles exposed. After the scarification the patient was tapped, the space left by the slough granulated kindly, and when I last saw the patient the part had nearly healed. This unexpected cicatrization seemed to me to furnish a striking illustration of the general improvement resulting from the removal of the dropsical effusion by tapping.

To sum up in a few words, the management of hydro-peritoneum, so far as it has been considered, the first object generally being to effect the removal or diminution of the peritoneal effusion, we may make cautious trial of diuretics and hydragogue cathartics. If these means do not prove promptly efficacious (as they will very rarely do), it is useless to persist in the former (diuretics), and injurious to continue the latter (hydragogues). Tapping should be resorted to so soon as the abdomen becomes distended, and may be repeated as often as the effusion accumulates sufficiently to produce distension. If the system be not much debilitated, all alcoholic beverages are to be interdicted; and if these seem to be required, or the patient have not sufficient resolution to forego their use, wine and malt liquors should be substituted for spirit. If spirit must be taken, it should be taken diluted and not on an empty stomach. Tonic remedies are to be prescribed. A nutritious diet is important, and the quantity of liquid ingested should be as much restricted as practicable, the object being to render the blood rich in quality, without increase of quantity, avoiding anæmia and hydræmia. In general terms, the hygienic conditions should be as good as possible. If diarrhœa exist, it may be relieved by appropriate remedies, in some cases, at least, without injury, if not with benefit. It is dangerous to resort to scarifications to relieve excessive œdema of the genital organs.

**COURSE AND TERMINATION OF HYDRO-PERITONEUM. PROGNOSIS.**—Of the 46 cases which have been analyzed, 24, as already stated, either ended fatally under my observation, or the patients were known to have subsequently died. Of the 22 non-fatal cases, in 8 there had been no improvement when the patients were last seen or heard from. Doubtless in most,



if not all of these cases the termination was fatal. In 4 cases, when the patients were last seen, or heard from, more or less improvement had taken place, but the dropsical affection continued. In 10 cases, the dropsy having disappeared or been removed by tapping, the patients were free from the affection when last seen or heard from. The period during which it is known that they continued exempt from dropsy, varies from a few weeks to eighteen months. In only two of the cases is the present condition of the patients known, nor, excepting these two cases, is it known whether the patients are living or dead. In one of the two cases just referred to, the patient is now well after a period of over eighteen months from her recovery, and in the other case the patient is in comfortable health eight months after recovery. Exclusive of these 2 cases, the patients were in no case known to have remained free from dropsy for a longer period than three months, and in most of the cases only for a few weeks. They were hospital cases, and after the removal of the dropsy, with more or less general improvement, they were discharged, and have not been heard from since their discharge. It is by no means fair to consider these 8 cases as having terminated in recovery. It is highly probable that in most of the cases the dropsy subsequently returned. Of the two excepted cases, in one the period of exemption from a return of the dropsy (eight months) is hardly long enough to consider the recovery as permanent; so that, in fact, out of the forty-six cases analyzed, I can state positively that recovery has taken place in but a single instance. This is the case of Mrs. W., which has been given in full.

The duration of the disease, dating from the commencement of the dropsy, in the fatal cases, varied from six weeks to seventeen months. The average duration in 16 cases is about five months. The duration of the dropsy in the cases in which it was removed and did not return while the patients were under observation, varied from one month to four months.

The prognosis, as regards permanent recovery, it is evident, is extremely unfavourable. But with reference to this point, a collection of cases in which patients remained under observation for a longer period after apparent recovery, is desirable. We cannot consider a patient as having recovered, although he may have been exempt from recurrence of effusion for weeks or months, if pathological conditions remain which will inevitably, sooner or later, reproduce the dropsy. The facts developed by this analysis, however, show that in a fair proportion of cases the dropsy may be removed, and not return for weeks or months, the patient, in the meantime, regaining apparent health. We are warranted, therefore, under favourable circumstances, in holding out encouragement for this result with the possibility of permanent recovery.<sup>1</sup>

<sup>1</sup> Since this article was written, a case has come under my notice of much interest as regards apparent recovery after tapping, and reproduction of the dropsy after the lapse of several years. The patient was admitted into Bellevue Hospital with

The most favourable circumstances are those which go to show that the dropsy is dependent on some functional condition, and not on hepatic lesion; the cases, however, in which we are warranted in coming to this conclusion, are exceedingly infrequent. But assuming the existence of structural disease of the liver, circumstances are favourable which render it probable that the dropsy depends, not exclusively on the hepatic disease, but, to a greater or less extent, on associated morbid conditions which we are able to control, such as anæmia, general debility, diarrhœa, intermittent fever. In other words, the prognosis is unfavourable in proportion as we have reason to believe that the dropsy is exclusively due to irremediable lesion of the liver. If the liver have undergone structural change, permanent recovery is not to be expected, but it is to be borne in mind that dropsy may be removed and not return for an indefinite time, notwithstanding a certain amount of immediate hepatic lesion. When, therefore, there is reason to believe that dropsy involves the existence of cirrhosis (which is true of the vast majority of cases), although we cannot look for permanent recovery, we may hope, if the circumstances of the case are not otherwise unfavourable, that, after the removal of the dropsy, the patient may be exempt from a recurrence of the affection for a long period, and that, in the mean time, with judicious management, a comfortable state of health may be secured. The liver, doubtless, like other important organs, has a functional capacity exceeding greatly the necessities of the economy. Like the lungs, kidneys, stomach, heart, etc., it may be damaged to a greater or less extent, and yet be competent for the duty required of it. As proof of this, in fatal cases of cirrhosis, death generally takes place by asthenia, induced by the serous transudation, the disturbance of the functions of the thoracic and abdominal organs by the pressure of the liquid, the difficulty attending the introduction into the general circulation of the nutritious supplies in the portal blood, etc., and not from the reabsorption of bile or the retention in the blood of excrementitious biliary principles. Assuming that the liver has received a certain amount of damage from structural change, there are two great ends to be desired: *First*, that, if possible, further damage shall not occur; and, *Second*, that the powers of the system may be preserved, so as to tolerate, as well and as long as possible, the structural change already existing and which must continue.

hydro-peritoneum which had existed for two months, having been developed after intermittent fever. Eight years ago he had this disease, and at the end of four months was tapped. The tapping was repeated after an interval of two weeks. There was no return of the dropsy for six years, and during that time he had good health. Two years ago the dropsy returned, and he had hæmatemesis. Five weeks from the commencement of the dropsy he was tapped. The dropsy returned, but disappeared under the use of medicines, and he remained free from it until two months ago. He has continued to drink spirits more or less prior to, and ever since the first occurrence of the dropsy.



Circumstances which preclude much expectation of improvement, are: the coexistence of cardiac or renal disease; considerable emaciation; sufficient debility to keep the patient in bed; jaundice; greatly impaired appetite and digestion; speedy reaccumulation of liquid after tapping. When more or less of these unfavourable circumstances are present, the physician can hardly hope to do more than to retard the progress toward a fatal termination.

In conclusion, unpromising as are the majority of the cases of hydro-peritoneum, I cannot but believe that, as regards prolongation of life and as much improvement of health as is compatible with existing structural disease, the success of medical practice would be enhanced by employing less than has been the custom of physicians, diuretics, hydragogue cathartics, and other depressing remedies, by resorting earlier than is usually done to tapping, and by a greater reliance on tonic medication, together with hygienic measures to invigorate and strengthen the system.

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ART. III.—*On Gold Dust and Iron Filings, as an Antidote for Corrosive Sublimate.* By CHRISTOPHER JOHNSTON, M.D., Baltimore, Md.

In the year 1841 a rejected lover, at that time a visitor in Baltimore, committed suicide by taking a large dose of the corrosive chloride of mercury. The case fell into the hands of Dr. Thomas H. Buckler, who employed, unavailingly, all the known antidotes for this destructive agent, and had the misfortune to see his patient die in great agony. The failure of art to relieve made a strong impression upon Dr. Buckler, and he forthwith instituted experiments with the view of ascertaining by observation the efficacy and value of the various articles used or proposed to counteract the poisonous effects of the mercurial salts.

In the course of these experiments upon pigs and dogs, it occurred to him to magnify the *galvanic test* into an antidote—for, said he, if the corrosive chloride in solution, being placed on a bright gold surface, and touched with an iron point which is also brought in contact with the gold, undergoes decomposition, there is no reason why gold and iron in the form of powder, as exposing great surface, should not also separate chlorine and mercury in combination in the living stomach. Besides, the elements are instantly appropriated by the antidotal agents, “the mercury attaching itself to the negative electrode, namely, the gold, while the chlorine unites with the iron of the positive electrode to form chloride of iron; and thus, for a highly dynamic substance, we substitute a comparatively inert amalgam of gold and a harmless chloride of iron.”

Accordingly into the stomach of pigs and dogs he introduced poisonous



doses of the corrosive chloride of mercury, taking care to control the œsophagus: and then, after various intervals, he passed an estimated quantity of gold dust and iron filings into the stomach of a portion of the animals. All the poisoned animals which had not received the antidote became the victims of the experiment; and of the others, those only died which had presented very severe symptoms before the administration of the remedy.

These results were published by Dr. Buckler in the *Baltimore Medical and Surgical Journal* in 1843, with a recommendation, by the author, of the *new antidote* which he proposed. But the suggestion seemed to have received no attention whatever, until, in the last year, a case of corrosive sublimate poisoning occurred to us, in the which we essayed for the first time gold dust and iron filings upon the human subject.

We had had the good fortune to witness a repetition of Dr. Buckler's experiments, and were familiar with his views in respect of the agency at work; so that we only awaited a fitting opportunity for testing the value of our friend's proposition.

On the 14<sup>th</sup> of May last, a gentleman of this city, being disturbed in mind, procured two drachms (3ij) of corrosive sublimate from an apothecary, assigning as a reason his intention of destroying rats; mixed two-thirds of the salt with whiskey and water and swallowed the whole at a draught, leaving no dregs in the tumbler. In about ten minutes his wife, hearing efforts at vomiting in her chamber, proceeded thither, and found her husband sitting up in violent and agonizing emesis. A word and the fatal paper satisfied her as to the danger of the sufferer; whereupon she dispatched a messenger for medical aid, but administered the while milk and white of egg, having in a previous marriage been the observant wife of a physician.

In five minutes—it so happened—we were at the bedside, and the galvanic antidote being present in our mind, we sent in haste for two drachms of iron by hydrogen, and a book of gold-leaf. While waiting for the arrival of the articles we encouraged perseverance in the use of albumen and milk, but the patient continued to vomit freely, violently, and uninterruptingly. Everything swallowed was rejected as soon as it approached the stomach, and then, after sturdy efforts, small quantities of greenish mucus, streaked with blood, were discharged. The face was much congested, the body cold, and the whole surface bedewed with sweat.

In less than ten minutes (in all somewhat short of twenty-five minutes from the ingestion of the sublimate) we had prepared a bolus by dusting the surface of a leaf of gold with the iron, over this another leaf, then iron, and so on, alternating the two metals until about one-half of the gold leaf had been expended, and the mass was rolled into a ball.

Before swallowing this, however, we administered warm water to effect the removal of mucus, albumen, and milk, should any of these matters be in the stomach, as they must defend the sublimate from the action of the antidote by preventing contact. Instant emesis followed.

The bolus was readily taken into the stomach, aided by a little water, for the poisoned man regretted his act and wished to escape from death. For five minutes there was a calm, during which we made another bolus with the remainder of the gold-leaf and iron.

Vomiting now recurred, but with less violence, and the matters ejected were tinged with yellow or light brown, and contained particles of gold-leaf.

Presently another moment of quiet occurred, which was the signal for the administration of the second bolus. Vomiting now ceased entirely, although at intervals for an hour a slight tendency towards emesis was observable—but the frantic, tremulous anxiety, had given place to confidence and composure—the man had assumed a hopeful appearance, and we were of opinion that the first—the greatest danger—was past.

On the next day moderately severe ptialism manifested itself; but the convalescence was rapid, and the cure was complete in about eight days.

The after-treatment, when vomiting was arrested, was very simple, consisting of hydrocyanic acid in mucilage with small doses of morphia; mucilaginous drinks, as of gum Arabic, or quince seed, were directed; and beef-tea and arrowroot were the essential articles of diet for some days. Rochelle salt dissolved in soda water was given on the first days, and counter-irritation over the epigastrium practised from the beginning, and continued until all signs of gastric disturbance had disappeared. And, to conclude the statement, the mouth symptoms were met by gargles of tinct. perchloride of iron largely diluted with water, alum in infusion of sage, and lastly, flaxseed tea acidulated with lemon.

We would not insist upon the superior efficacy of gold-leaf and of iron by hydrogen over gold dust and fresh iron filings—although in the case reported the virtue of the former was apparent to and acknowledged by all the witnesses—for we have still a preference for the latter, on account of the freshness of the metallic surfaces. But in the hurry of the moment the first mentioned may be easily obtained in a state of preparation excepting on Sundays, and then even a dentist would furnish gold-foil No. 4 or lighter, which would supply the place of gold-leaf. If the conveniences were at hand, or, if we were near a pharmacist's, we would prefer to grind gold-foil with fresh iron filings in a mortar, and exhibit the coarse powder so produced with a little water; for the heavier particles would more quickly find their way to the mucous coating of the depending portion, while enough of the finer particles would distribute themselves throughout the stomach to accomplish the destruction of the corrosive chloride not in contact with the mucous membrane.

With regard to the quantity and proportions of gold and iron to be administered together as an antidote for the corrosive mercurial salt, it is desirable to know approximately the amount of the poison taken; but this is not indispensable, for an overdose of the remedy would occasion no "unpleasant" consequences. Lest an insufficient quantity of the metals be



exhibited, a reference to the table of equivalents is necessary. As for mercury and gold there is much discrepancy among authors, but if we adopt for Hg 100.1 (Erdmann) for Au 196.44 (Berzelius), for Fe 28.04 (Erdmann) and for Cl 35.5 (Berzelius), we have for corrosive sublimate the formula  $\text{HgCl} (100.1 + 35.5) = 135.6$ , and 100 grains would contain Hg 73.82, and Cl 26.18. Now, since the corrosive sublimate in the presence of gold and iron is reduced, and there are formed an amalgam of gold and sesquichloride of iron, we must know how much iron is needed to make that compound with Cl 26.18. The formula for the sesquichloride is  $\text{Fe}_2\text{Cl}_3 (56.08 + 106.5) = 162.58$ ; therefore in 39.96 grains we have Cl 26.18 combining with Fe 13.78, the quantity sought.

Again, to estimate the gold, assuming the amalgam formed to be in equivalent proportions, we find  $\text{AuHg} (196.44 + 100.1) = 296.54$ ; and in 218 grains we discover 144.86 grains of the precious metal, and 73.82 grains of mercury. Or, if we employ the equivalents adopted by Cahours, thus, Au 98.18 (not far from Graham, Au 99.6) and Hg 103), we have 140.92 grains of amalgam yielding 67.10 grains of gold. In short, we need 144.86 grains of gold (or else 67.10 grains) to appropriate the mercury liberated by the action of the reagents. This discrepancy is not likely to lead to ill-results, for, if we use the larger number, we might be quite at ease about the amalgam produced, and it is not certain that the lesser quantity would contribute to form an amalgam more noxious than the other.

To sum up: For 100 grains of the corrosive sublimate of mercury taken there would be required of iron 13.78 grains, or rather less than the  $\frac{1}{4}$ th part by weight, and of gold dust 144.86 grains, or about one and a half times the weight, to effect the decomposition of the poison and the complete appropriation of its elements. If we follow Cahours we need only employ 67.10 grains of gold.

In conclusion we would remark, that very large doses of the antidote must be rarely needed, since vomiting, which marks the earliest effects of the corrosive chloride of mercury, necessarily rids the stomach of some portion of the destructive agent.

January 19, 1863.

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ART. IV.—*Surgical Cases, Illustrating some Practical Points.* By JOHN ASHHURST, JR., M.D., of Philadelphia.

THE following cases are selected, not from any peculiar intrinsic interest, nor from a supposition that they are in any degree rare or unusual; but because it is believed they will serve to illustrate one or two points in practice about which much diversity of opinion exists, and which the present war ought to settle, if not definitively, at least more certainly than has hitherto been done.



These cases were all advanced into the secondary stage, or that of supuration, when first brought to the Chester hospital, where I observed them. Had the necessity for operative interference been more quickly recognized, there is no doubt the results would have been more favourable. The statistics of secondary amputation in gunshot wounds are so unsatisfactory, that the operation was only employed when it seemed any other course would insure death. And this, I think, should be the rule; in the case of primary operations, the sooner the better. "Every hour," says McLeod, "the humane operation is delayed, diminishes the chances of a favourable issue." (*Notes on Surgery of Crimean War*, Am. ed., p. 319.) But when the golden opportunity has been lost; when, for any reason, the attempt to save a limb has been made, and the suppurative stage has fairly come on, amputation should not be resorted to, unless the patient's general health begins to give way, when of course the limb must be sacrificed in the endeavour to preserve life.

It is the popular opinion, unfortunately encouraged by some of the profession, in this, as it has been in every other war, that army surgeons are too prone to operate, and that limbs are daily sacrificed that might be saved; but the same conviction is gradually coming to us that was forced on McLeod, on Hennen, on Dupuytren, on Baudens, on Begin, on Larrey, and Guthrie; that, in trying to save limbs, we lose lives. "At the outset of my career," said Begin, "I amputated less than I did toward the end of my service," and the same is the experience of all. I suppose there is hardly a surgeon in the Federal army who does not know of one or more lives sacrificed to "conservative surgery," so called.

I shall narrate the cases I have to report in the order in which they occurred, and shall afterwards call attention to one or two points of interest connected with them.

CASE 1. Private Faulkner, Co. H., 70th N. Y. Vols., was wounded in one of the battles before Richmond in the latter part of August, 1862. A flesh wound of the abdominal parietes in front, and a comminuted fracture of both bones of the left forearm just above the wrist, were the effects of the same ball. He came to the army hospital at Chester, Pa., on September 3d, and was placed in the ward of which at that time I had charge.

As suppuration was already established, and the case seemed to be progressing favourably, the arm was lightly dressed, and kept at rest on an appropriate splint. About the middle of September, however, the limb became much inflamed, and it was rendered evident that the destruction of bone was much greater than had been supposed; and that, in all probability, the wrist-joint itself was involved. At the same time the wounds of the abdominal region assumed an unhealthy appearance, diarrhœa set in, and the patient became daily more prostrated.

Free incisions, soothing applications, and all means that a desire to save

the limb could suggest were employed, but without avail; and on the 25th September it was decided, in consultation, that the forearm must be removed.

I accordingly performed the operation the same afternoon, the patient being under the influence of ether, by the method of Mr. Teale. Sixteen ligatures were applied, the flaps brought together by points of lead suture, and the stump kept wet with an anodyne wash. Light, but nutritious diet, six fluidrachms of brandy every hour, with tonics and anodynes cautiously administered, constituted his treatment. The patient rapidly improved, the flaps adhered throughout, except where the ligatures escaped, and recovery followed without a single unfavourable symptom. When I last saw this man, in December, he was awaiting his discharge, not having been under any treatment for a long while, and his stump as full and plump almost as on the day of operation.

CASE 2. Corporal Warren, Co. H., 20th Mass. Vols., at the battle of Antietam, September 17th, received a gunshot fracture of the right humerus, and entered the Chester hospital on the 2d October following. The next day a portion of ball was removed by a counter-opening on the outside of the arm, the track of the original wound being antero-posterior, and in the middle third. Subsequently the wound of entrance was enlarged, and a fragment of bone, which was loose, extracted. By the finger, which could be easily introduced into the posterior wound, that of exit, it was found that a large fragment of the lower part of the humerus was dead and partially loose. It was therefore determined, in consultation, to enlarge this wound, remove all loose pieces of bone, and, if necessary, saw off the projecting extremities of either portion.

Accordingly, on the afternoon of the 11th, the patient was brought under the influence of ether, and a free incision made longitudinally downwards from the wound of exit. It was found, by the examination which could now be made, that the destruction of bone was much greater than had been at all imagined, and resection was resolved upon, which it was supposed would give a reasonable prospect of preserving the limb.

Access to the bone was facilitated by a transverse incision, starting also from the wound of exit, the upper end of the lower fragment removed by means of a metacarpal saw, and the projecting part of the lower fragment by bone-nippers. Only a few small vessels required ligature, the wound was accurately closed, and the limb placed at rest on a splint. With the exception of a very profuse suppuration and consequent failing strength of the patient, everything progressed favourably until early in the morning of the 18th, one week after the operation, when a profuse secondary hemorrhage took place, stopping of itself by the time I reached the ward.

It was now decided, should hemorrhage recur to any considerable amount, as the patient was already much weakened by suppuration and the subsequent loss of blood, to perform amputation above the seat of injury.

Another hemorrhage, of a still more alarming extent, did take place the next afternoon, and, accordingly, the patient being under the influence of ether, I removed the arm in its upper third, oval skin-flaps being obtained from the front and back of the arm, and the muscles divided by a circular incision higher up. Very little blood was lost, thirteen ligatures being employed, and the flaps brought together by the lead suture. For several days the patient hung between life and death, but nature finally triumphed, and recovery, after amputation, was even more rapid than had been the sinking after the "conservative" operation of resection.

CASE 3. Corporal Burnham, Co. D., 132d Pa. Vols., admitted also on October 2d, with a gunshot fracture of the left radius, received at the battle of Antietam. For some weeks the case was treated by the ordinary methods, but at the end of that time it was found that the radius had become necrosed for a space of about three inches, and apparently in its entire thickness. Resection was at first proposed, but, in view of the man's broken down condition, the risk of secondary hemorrhage or sloughing, and consequent necessity for a subsequent operation, and the patient's own expressed preference for amputation, the latter course was adopted, and I removed the forearm a short distance below the elbow on October 28th, by making two oval flaps, antero-posterior, cut from without inwards, the patient being under the influence of ether. Consecutive hemorrhage required the stump to be opened the same evening, and finally could only be stopped by plugging either bone with a pellet of wax, and inserting several thicknesses of patent lint between the flaps, which were then held together by strips of adhesive plaster.

Oct. 30, both flaps presented healthy granulations, the lint was removed, and the flaps kept in position as before.

Nov. 2 (five days after the operation), a secondary hemorrhage. On opening the stump the bleeding vessel was found and tied.

Nov. 4th, 4 A. M., another hemorrhage, stopping of itself, and followed by still another about three hours later. It was now determined to ligate the brachial artery, which was accordingly done, the patient reacting with difficulty from the anæsthesia which had been again produced, and being exceedingly feeble from the repeated loss of blood. The brachial artery was found to have divided high up, and both branches were accordingly secured. For some days he seemed to improve, then sloughing and numerous abscesses around the joint followed, hemorrhage recurred from both wounds, and death closed the scene on November 15, eleven days after the ligation of the brachial artery, and eighteen after the amputation. No *post-mortem* examination was obtained.

CASE 4. Private Donnell, Co. B., 27th N. C. Regt. (rebel prisoner), also wounded at the battle of Antietam, and admitted on October 2d.

The wound, which appeared to be simply a flesh wound, did well, and



was nearly healed, when, from some then unknown cause, the track reopened, and by the probe and little finger dead bone was detected about the middle of the left femur. After some time rigors and hectic supervened, and it became evident that, unless an operation could alter the state of things, death must inevitably occur, and that in a very short time. Amputation was accordingly determined on, and the patient being etherized, I removed the thigh about the junction of the upper and middle thirds by the circular incision on the afternoon of November 6. The patient with great difficulty reacted from the state of anæsthesia, but subsequently sank suddenly, and died seven hours after the operation. The femur was found necrosed in its entire thickness, and a large mass of soft callus had been thrown out, between which and the dead shaft a foyer of pus existed.

The points to which I wish to refer in these cases, and which I consider of great practical importance are : 1. Resection in the continuity of long bones as a substitute for amputation, and as an aid to nature in compound fractures. 2. Ligation of main arteries as a remedy for secondary hemorrhage. 3. The importance of amputating soon when the operation is to be done at all.

The excision of the articular extremities of the long bones for injuries of the joints is an operation now firmly and justly established as truly conservative. The removal of portions of the shaft of long bones for necrosis has been done with occasional good results. "Such operations, however," says Holmes, "whether undertaken on account of caries or necrosis, too often result in failure." (*Syst. of Surgery*, vol. iii. p. 830.)

The same author, in his edition of Wagner's treatise on the process of repair after resection and excision of bone, has collected seven cases of resection from the substance of bone, only three of which, however, are apposite to the present discussion. In one of these, the ulna being the bone concerned, "the movements of the arm including rotation, were almost perfectly restored." In another, where a great part of the tibia was removed, after three-quarters of a year, "in spite of the uninjured fibula, shortening of more than two inches had occurred." While in the third, also a resection of the tibia, "the limb remained useless, and the leg was amputated eight months afterwards." (*Selected Monographs*. New. Syd. Soc., pp. 239-240.)

These were resections under favourable circumstances, for in operations for disease, the periosteum can generally be preserved, thus giving a chance for the formation of new bone.

A great deal is said at the present time about subperiosteal resection. "Some writers," says Mr. Holmes, "speak about subperiosteal resections of joints, in such terms that one is almost disposed to think that they imagine the possibility of dissecting out the end of the shaft of a large bone, like the femur or the humerus, and leaving behind a sleeve of periosteum, which is to reproduce the bone. Such an idea is preposterous.

The attempt would only result in leaving some irregular shreds. M. Ollier's experiments show that such shreds will, in the lower animals, produce irregular nodules of bone. Probably this would not be so in man; but if it were, such nodules would be more often in the way than otherwise." (*Syst. of Surgery*, vol. iii. p. 803.)

Ollier has indeed gone further than this, and has shown that in animals, an entire articulation may be reproduced; and even suggests a new operation, "*osteoplastie périostique*," as being quite possible. Although, however, nearly four years have elapsed since the publication of his paper (*Journal de la Physiologie de l'Homme et des Animaux*, Avril, 1859), I am not aware that even an attempt has been made to carry out his proposal.

But whatever may be the results and prospects of resection in cases of necrosis, gunshot or other injuries present a different position of affairs; here the preservation of the periosteum may be looked upon as practically an impossibility, and the best result that can be hoped for is a shortened and twisted limb. If the end of a broken bone project through the skin, and the fracture can in no other way be reduced, it would seem reasonable to saw off the projecting portion, and thus remove the obstacle to the proper adjustment of the fragments. But if this particular contingency be not present, and deep and long incisions be required to expose the injured bone, the question is different. If the destruction be so great as to render an operation of any kind necessary, I doubt if true conservatism would not point to amputation; because for one limb deformed and helpless perhaps, which resection might save, I fear that more than one life would be sacrificed.

Hence, should another case like that of Corporal Warren occur to me, I should avoid all operative interference as long as possible, and if it became finally indispensable to do anything more than the mere removal of sequestra, I should advise amputation at or above the seat of injury.

The utmost, I conceive, that resection in such a case could accomplish, would be the preservation of a limb of doubtful utility. "I cannot," says Mr. Holmes, "discover any evidence of the restoration of the continuity of a long bone after its interruption by the resection of a piece of its shaft, except in cases of necrosis. Probably if the piece were very short, union might occur; but the necessity for the removal of such a piece could hardly ever arise." (*Syst. of Surgery*, vol. iii. p. 830.) To all the risks of a compound fracture, the risks of a capital operation are added; and if the necessity for subsequent amputation, as in my case, arises, it is not always that the patient is so fortunate as to survive his complicated dangers.

No accident following operations is more harassing to the patient and more feared by the surgeon than secondary hemorrhage, and it might seem strange that the profession have not yet arrived at any unanimous conclusion as to the best means of remedying so dreadful an occurrence. Most



surgeons, if not of the present day, at least quite recently, have supposed that ligation of the main artery above the seat of hemorrhage was the safest and surest way of checking bleeding. But the fact brought so prominently forward by Guthrie, that secondary hemorrhage in almost all cases is from the lower or distal end of the wounded vessel, explains the frequent failure of this operation. Undoubtedly when it is possible to do so, Guthrie's recommendation should be carried out; viz: to cut down at the seat of hemorrhage and secure both ends of the bleeding vessel. But in many cases this is impossible. By the time the bandages and dressings are removed the hemorrhage has ceased, and the bed soaked in blood, and the patient's fluttering pulse are all that remain to tell of the occurrence. In such a case forced flexion of the limb, or pressure upon the main vessels, will sometimes prevent a return of the bleeding; but, as a general thing, ligation of the artery above, or amputation, are the only means that promise success; for the most careful scrutiny may fail to discover any patulous arterial mouth.

Ligation is of course looked upon with favour, as giving a chance of saving the limb.

I can recall very well a case in the Pennsylvania Hospital, where, for hemorrhage, the radial, then the ulnar, and finally the brachial artery was tied; and the man's life and limb were both saved. But I fear such cases are exceptional. The use of the actual cautery, introduced into the bleeding artery through a canula, as practised by Mr. Cline (*South's Chelius*, Am. ed., vol. i. pp. 347-352) would, I should suppose, be very efficient, but for the fact that in most cases of secondary hemorrhage it is impossible to find the bleeding vessel.

In compound fractures, whether from gunshot wounds or other causes, ligation of the principal artery will not only generally not succeed in permanently arresting hemorrhage, but superadds a considerable risk of gangrene; while even in bleeding from stumps, where it would seem to promise more favourable results than under any other circumstances, it too often proves unavailing, and subsequent amputation or death obliges the unwilling surgeon to record it among his unsuccessful operations.

A case, narrated by Bertherand, seems so appropriate in this place as to merit more than a passing reference:—

“Captain O——, who had been wounded in the upper third of the forearm by a ball which passed between the two bones, after a considerable time had a hemorrhage which was attributed to a wound of the interosseous artery. After vain efforts to control it by the application of Signoroni's compressor, the usual hæmostatics, compression direct or remote, the brachial artery had to be tied. In spite of this remedy, which one might suppose would be final, the hemorrhage soon returned. I was asked to see the patient. He was lodged with an excellent *confrère*, who, with his wife and two daughters, maintained from hour to hour a digital compression on the wounded limb. Having assured myself of the reality of the ligature of



the principal trunk, I probed the wound and took away with my forceps a fragment of lead. I then passed into the track a mesh saturated with a solution of the perchloride of iron, and the bleeding was arrested. As the lower end of the vessel might be the source of the accidents, I advised the application of a gauntlet bandage and graduated compresses, methodically bound, as well on the face of the limb as in the interosseous space, and continued as high as the wound, an elevated position for the hand, perfect rest, and digital compression in the axilla. In spite of these precautions the dressings were again the next day tinged with red, and the patient sinking, all resources having been exhausted, we had to be resigned to the cruel necessity of amputation.

"I have since learned that Captain O—— was not able to support its consequences." (*Bertherand, Campagne d'Italie*, pp. 159, 160.)

Who can say that here the "humane operation" in the first place would not have been truly conservative. I am aware that the doctrine I am advocating is in opposition to the views of many, probably a large majority, of the most eminent names in surgery; but I am well convinced that had I in Corporal Warren's case tied the brachial or axillary, instead of amputating, he would not now be alive; while, on the other hand, if in Burnham's case I had amputated above the elbow, instead of tying the brachial, it is not impossible that the result might have been different.

The third point to which I wish to direct attention is the importance, when an amputation is certainly to be done, of doing it as soon as possible. Many a life has been sacrificed to the hope of getting the patient in a better condition before operating. It should be remembered that the shock of an operation, particularly with the use of ether and opium, is a very slight matter; while the presence of the limb to be sacrificed is a positive and constant depressing agency.

Had Faulkner's arm been left on a few days longer, in the hope of his being better able to support the operation, I believe the operation would have come too late. Had Donnell's thigh been sacrificed at the first manifestation of unfavourable symptoms, his life might possibly have been preserved.

On the other hand, no secondary amputation should be performed for mere *probable* cause; for the ability of nature to relieve herself by throwing off sequestra, &c., is sometimes almost incredible. If the operation be inevitable, or if the patient be manifestly failing day by day, hesitation may become fatal; but while the health is kept up, and the effort seem not too great for nature unaided, expectancy remains the proper mode of treatment.

The inferences which have been forced upon myself by a careful review of the cases above narrated may be thus summarily stated:—

I. When the injury is recent, in any case of doubt the limb should be amputated. For one limb needlessly lost, many lives will have been saved.

II. Resection in the continuity of long bones is not a substitute for am-

putation; and except in the one case of a bone projecting through the skin, and otherwise irreducible, is not an assistance to nature in the treatment of compound fractures.

III. Ligation of an artery above the wound is too often unavailing as a means of checking secondary hemorrhage; and in many, if not most cases, amputation is a safer remedy.

IV. No secondary amputation should be performed for *probable* cause only; but if certainly requisite, or if the patient be evidently sinking, delay, even the slightest, is to be deprecated, and often will, unhappily, prove fatal.

PHILADELPHIA, February, 1863.

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ART. V.—*On Compound Comminuted Fracture of the Femur from Minie Balls.* By A. E. CAROTHERS, M. D., of Newburg, Cumberland County, Penna., and formerly Act. Asst. Surgeon U. S. Army.

THE character and extent of the injury caused by the minie ball in the bony tissues, and especially in the compact substance of the shaft of the long bones, as the femur, is very different from that caused by any other projectile used in modern warfare.

The weight of the ball, its velocity, and the great momentum resulting therefrom, combined with its rotatory motion, serve to cause a fracture differing from that produced by the ordinary round ball, by the great comminution, by the disposition of the lines of fracture to extend along the bone in the axis of its length, and also by the tendency of the fragments to separate from their continuity and be driven off into the contiguous muscles. I have seen a *transverse* fracture of the femur caused by a minie ball, at least four inches above the point at which the ball impinged on the shaft of the bone, resulting from *momentum* of the ball being transmitted along the shaft of the bone, until a point was reached at which the resistance of the femur counteracted it, at which point a fracture was produced by the opposing forces.

It having been my fortune to meet, during the term of my service in the U. S. Army, quite a large number of compound comminuted fractures of the femur from minie balls, I purpose to give a brief resumé of the cases, with a detail of their treatment and results, as nearly as possible from the few hasty notes which I was able to take at the time, and from my own recollection of the cases.

My first cases were three soldiers wounded at the battle of Cedar Mountain, August 9th, 1862, in the U. S. General Hospital at Culpepper Court House, Va., who were placed in my ward as hopelessly injured. They had all extensive comminuted fractures of the middle and upper thirds of the femur.

They were left at Culpepper Court House at the time our forces under General Pope retreated down the Valley of Virginia, on August 19th, 1862, and of course fell into the hands of the enemy. I remained with them, and only mention the fact, as the insufficient food, &c., which were afforded the men as prisoners in the hands of the enemy, and removed from his base of supplies, must have had a bearing on the prognosis.

I resected the femur in two of the cases, taking out about four inches of the shaft from immediately below the trochanters, and in one case cutting *through* the trochanter major.

They were both fine subjects, young men in perfect health previous to the injury, and had neither been addicted to the use of alcohol. Both died, worn out by hectic from the extensive suppuration.

The third was rather the most promising case of the three, and I determined to make an effort toward conservatism. I accordingly placed his limb on a double inclined plane, attended to the external wound, keeping it clean, &c., pressed out the pus, which accumulated in considerable quantities, and kept up his general strength as well as our circumstances would allow. He recovered with a useful thigh. I regret that I cannot give this case more in detail, but I was afterwards removed from him, and have only obtained the *result* from a professional friend.

The next cases that came under my observation, and partly under my treatment, were sixteen soldiers in the Waters Warehouse Hospital, Georgetown, D. C., under charge of M. F. Bones, Asst. Surg. 12th Pa. Cav. They were all wounded at the second battle of Manassas, August 29th and 30th, 1862, and had lain on the field for from eight to ten days, previous to being removed, and were consequently very much reduced in strength by hunger, thirst, loss of blood, suppuration and fatigue, having been brought forty miles in ambulances, after having lain so long exposed. Many were nearly destitute of clothing, and their wounds were filled with maggots. These facts are noteworthy, as they have a decided bearing on the result.

To these cases were immediately applied Smith's Anterior Wire Splint, put on by means of broad adhesive strips, which served to suspend the limb; and afterwards the whole was covered by a roller bandage, which served to equalize the pressure, exclude the flies, and was removable at pleasure, without disturbing the support of the limb. They had good nutritious diet, stimulants, tonics, &c., as the cases required.

There was but one operation performed; in which I assisted, which was undertaken as a resection through the trochanters, but in the course of the operation it was found that the injury extended into the head of the femur, and it was excised. This patient died in a few days, worn out by the irritation and suppuration consequent on so grave an operation.

The remaining fifteen cases were treated on the conservative plan I have indicated, with five recoveries and ten deaths, an unusually large percent-



age, if we consider the condition of the men when brought into the hospital.

The next case was that of an officer in the Seminary Hospital, Georgetown, D. C. His femur was badly comminuted for from four to five inches, immediately below the trochanters, as a very careful digital examination, with the patient completely etherized, revealed. One fragment, apparently about three inches in length, was lying diagonally across the axis of the thigh, removed entirely from the body of the bone at one end, and imbedded in the muscles on the inner side of the thigh, in apparently dangerous proximity to the femoral vessels. The fracture extended into the trochanters. The operation of resection was decided upon by the surgeons who attended him, but from some reasons which I never fully ascertained, but which I think were the objections of the patient to losing his leg, it was not performed, and it was decided to put his limb into Smith's anterior splint, and make an effort to save it, with, however, grave forebodings for the result.

A point in this case to which I desire to direct special attention is, that there had been an anterior splint used up to the time when an examination revealed so unfavourable a state of the parts, but it had been so adjusted as to defeat the very intention with which it had been used. In consequence of elevating the foot too much by shortening the lower cord by which it was supported, and from placing the point of support too near the head of the patient, instead of making the weight of the body serve as an extending force, the lower fragments of the shaft were pressed upwards, causing the ends of the bone to ride over each other, and giving rise to a great amount of pain, which was entirely relieved by a proper adjustment of the splint. He recovered in three months with a useful thigh, about one and a half inches shorter than its fellow, and I had the pleasure of meeting him in Washington a short time since almost perfectly well. Of course he had all the advantages of good diet, stimulants, tonics, and a careful attention to general symptoms.

The last case I have to record was that of a soldier in the Georgetown College Hospital. About the 1st of January ult. I was invited to assist in the operation of resection of the femur for one of these fractures, which was done in a masterly manner, cutting through the trochanter major about its middle and removing about three and a half inches of the shaft below. The loss of blood was very small, and the operation performed in an unusually short time, but the patient never reacted from the shock of the operation, and died within twenty-four hours, although every means was resorted to to overcome the depression.

The result, therefore, is, that I present a record of twenty-one cases, in the treatment of which there were four operations, three of resection of the shaft of the femur and one excision of its head, *all* of which terminated in death.

In the remaining seventeen cases, in which no operation was performed, but the injured limb placed in *an apparatus producing steady extension and counter-extension*, the strength supported and the general indications for treatment met, there were seven recoveries and ten deaths.

In the resections which I performed I made an effort to preserve the periosteum, and succeeded in a great measure, but I never had an opportunity to ascertain whether an effort at the reproduction of bone had been made by it or not, although I think it highly probable that it was.

The operations were performed sixteen and seventeen days after the reception of the wounds, and a surprising effort at repair had been made in both cases, provisional callus being thrown out in great abundance, covering almost entirely some of the fragments of bone. Some of the smaller of these pieces were evidently dead, but had become enveloped, or, partially so, in the large amount of provisional callus thrown out.

The argument used in favour of resection was that the operation and subsequent contraction of the muscles simplified the character of the wound, converting a compound comminuted fracture, with the adjacent soft tissues filled with fragments of bone exciting irritation and suppuration, into a compound fracture merely; but if we are to have the operation at all, I think it should be performed as soon as possible after the injury, before the vital powers are exhausted by useless efforts at repair. Let us direct those efforts, if possible, toward the union of the two cut ends of bone, after the operation.

But the more rational and successful plan of treating this severe injury appears to be to bring as many as possible of those fragments back to their continuity in the line of the axis of the shaft, *as early as possible*, before provisional callus has been thrown out, interfering with a proper readjustment of the pieces; and allow them to be united as in an ordinary fracture. By so doing the patient is also almost entirely relieved from the pain, which is caused by the pressure of the fragments upon the adjacent tissues.

In fulfilling the above indication, the anterior wire splint, applied by means of broad adhesive strips, offers several apparent advantages.

It can easily be so adjusted as to produce any desired amount of extension, the extending force being so much of the patient's body as you suspend by the splint; and the force can be increased or diminished at pleasure by simply lowering or raising the splint by means of the suspending cord.

It raises the injured thigh off the mattress, keeping it cool, and preventing accumulations of pus, and water if it be used as a dressing, between the thigh and bed, tending thus greatly to prevent excoriations of the skin of the thigh. It affords an easy and convenient access to the external wound, and enables us to cleanse it frequently, thus preventing the accumulation of pus around the nates, and the abrasions of skin resulting in troublesome and painful bedsores, consequent on having those parts bathed in irritating discharges, or at best keeping the patient wet, uncomfortable and filthy; and



lastly, it gives the patient a greater amount of mobility in bed than any other plan of treatment; he can change from one side to the other of his bed, and after a few weeks, can even be lifted with care, to a chair by the bedside, the limb remaining suspended.

The principal objection to the use of this splint is that it favours the burrowing of pus, which, from the elevated position of the knee, will take place in the direction of the pelvis, and from the arrangement of the muscles, especially toward the tuber ischii, but this can readily be prevented by the judicious application of compresses and rollers, and counter openings if necessary, which, however, will not often be called for if proper care has been observed from the outset. Pus will have no greater chance to burrow than in either of the two other plans of treatment which I shall mention, and there are greater facilities for the application of rollers and compresses.

The same indications can be met, more or less perfectly, in different ways.

The double inclined plane produces the same results of placing the fragments in a position favourable to their union, and relieving the patient from pain by keeping up a regular degree of tension on the comminuted bone, which can also be increased or diminished at pleasure by increasing or diminishing the angle, but if the external wound be on the posterior part of the thigh, it is difficult or impossible to get at it to cleanse it, and there are all the disadvantages consequent on having the thigh and nates bathed in irritating discharges. Neither can the thigh be encircled with the hands so well, for the purpose of pressing out of the external wound the collections of pus which are so sure to accumulate, and which *will* burrow if they do not find exit.

This injury can also be successfully treated by simply placing the patient on his back in bed, making extension by means of a weight, cord and pulley, such as is used in the treatment of coxalgia, and supporting the sides of the limb by means of long sand-bags. This is an excellent plan, and has been used very successfully, but if the external wound be on the posterior surface of the thigh, the same disadvantages arise as in the use of the double inclined plane.

The evident deductions from the foregoing results appear to be: that the operation of resection is not advisable, but that it offers a more favourable prognosis as a primary than as a secondary operation; that a *moderate* and *regular* amount of extension and counter-extension, combined with attention to the external wound in regard to cleanliness, &c., preventing accumulations and burrowings of pus by securing it a free exit, and by the judicious use of compresses, supporting the general strength by diet, stimulants, tonics, &c., and a careful attention to general symptoms, present the conditions most favourable to recovery from this grave injury: that it is not so uniformly fatal as has been heretofore supposed: and lastly, that the anterior wire splint affords a plan of treatment which gives to the patient a greater degree of ease and comfort, fulfils the indications for



treatment better, and perhaps affords a greater chance of success and a more favourable record, than any other plan of treatment now in use.

Hoping that this effort may induce others of greater experience and more extended observation to give the results of their observations and their opinions of the proper management of this serious and terribly fatal injury to the general advancement of surgical knowledge, I respectfully submit it to the notice of the profession.

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ART. VI.—*A Case of Double Ovariectomy. Patient saved by daily Injections into the Peritoneal Cavity for eight weeks.* By E. R. PEASLEE, M. D., LL. D., Professor of Anatomy, &c.

Aug. 16, 1862.—Mrs. E. L. S——, of Post Mills, Vermont, consulted me in regard to the operation, in her own case, of ovariectomy. She is a highly educated lady, of delicate constitution, and thirty-five years of age; had been married eleven years, but had never conceived; had had an attack of inflammation of the left ovary one year after marriage, and had been treated for ulceration of the cervix uteri two years subsequently to this attack.

She first detected some enlargement of the left side of the abdomen in January, 1860; and in the following May, Dr. Darnell, of Georgia, in which State she was then residing, pronounced the enlargement due to an ovarian tumour. She returned to Vermont in December, 1860, and was tapped for the first time in January, 1861—20 lbs. of fluid having been at that time removed. Up to the present time she has been tapped twenty-six times, the amount of fluid varying between 20 and 30 lbs. at a time. For several months past the intervals between the tapplings have been only twelve to fourteen days. Menstruation has continued regularly until its cessation three months since. She has not taken much medicine; took hydragogue cathartics for a time with no good result. Diuretics did not act upon the kidneys at all.

*Present condition.*—Patient much emaciated and debilitated. Very little appetite, as usual, when the tapping again became necessary. Girth of abdomen forty-two inches. On performing the operation of paracentesis to-day, previously to deciding the question as to the propriety of the operation of ovariectomy, I removed 21 lbs. of fluid, evidently from the peritoneal cavity; when a large tumour could be detected, apparently presenting a constriction dividing it into two portions. Extensive adhesions were detected over its anterior aspect; but, on the whole, the case was considered a favourable one for the operation; and, after stating its dangers to the patient, she was left to decide, after mature reflection, respecting its performance at an early day.

An affirmative decision having been made, I performed the operation on the afternoon of the 30th of August, 1862, assisted by Dr. E. C. Worcester, of Thetford, Vt., Dr. W. B. Porter, of Paper Mill Village, N. H., and my pupils, Drs. Cowles, How, and Chapin.

The temperature of the apartment in which the operation was to be performed was kept at 80° (Fahrenheit), and the air rendered moist by the evaporation of water. A solution of common salt and albumen in water<sup>1</sup> was prepared and kept blood warm, with which to moisten the hands when manipulating the tumour or other contents of the abdomen. The patient was placed upon a table, the pudenda being covered by a diaper; and she was kept under the influence of Squibb's sulph. ether during the operation.

An incision four inches long, extending equally above and below the middle point between the umbilicus and the pubes, was made into the peritoneal cavity, when the adhesions before diagnosticated were found. These<sup>1</sup> were, however, peeled off by passing the hand between the tumour and the parietal peritoneum. The tumour itself, consisting of an aggregation of sacs, was diminished by tapping the largest of them, till it could be drawn out through the incision, when a double ligature was passed through the pedicle and tied round each half of it; when it was cut, and the tumour removed. The tumour was, however, so completely sessile (or in such complete contact with the right side of the uterus) that the ligature could with difficulty be applied; and I had to dissect it upwards from the pedicle one-half inch before the latter could be divided.

There was also an additional band extending across from the tumour to the uterus, which required a third ligature to be tied around it before the tumour was removed. Still another difficulty presented itself which I had not encountered in previous operations. The tumour presented very many vascular tufts on its external surface which gave way from the gentlest manipulation, and this led to a profuse hemorrhage into the peritoneal cavity.

Having removed the tumour just mentioned, and which, before reduction by tapping, was about as large as a gallon measure, I found, on passing my hand into the peritoneal cavity, that still another tumour remained. This was found to be the left, as the mass already removed was the right ovary. It was not quite half so large as the other, and was removed without the occurrence of any hemorrhage; its pedicle being also much longer and easily secured by a double ligature before it was divided. All the blood (and coagula) were then removed with the greatest care from the peritoneal cavity, both by the use of a very fine sponge and by turning the patient nearly upon the face, to allow it, as well as the dropsical fluid which had

<sup>1</sup> Chloride of sodium ʒiv; albumen (white of eggs) ʒvj; water Oiv. This fluid nearly resembles the natural secretion of the peritoneum, and was first used by me in Feb. 1855.

escaped from the sacs, to flow out—the hands being always dipped in the *artificial serum* above mentioned before touching the internal parts. Next, the wound was closed by eight silver sutures penetrating the abdominal walls, peritoneum and all—the five ligatures having been brought out through the lower extremity of the incision. A mere water-dressing, covered by oiled silk, was applied to the abdomen, and the patient was placed in her bed at six o'clock P. M.

The water-dressing to be changed often enough to keep it moist; the catheter to be used every eight hours; the patient to take only milk porridge every two hours for the present; and no medicine to be given till reaction is established, unless stimulants are required.

The following is a condensed report of her progress subsequently to the operation:—

9½ P. M., 3½ hours after the operation. Pulse 100, but intermittent—losing 15 to 30 beats; respiration 16. Complains of warmth and a burning in the feet. Quite restless, feels “very tired,” and has a little pain. Had taken a little milk porridge and a teaspoonful of brandy at 9. 10 o'clock, still restless. Opium suppository gr. j; 3ijss urine. 11 P. M. Pulse a little more regular; respiration 19. Feels tired, but is more quiet. Compress changed. 12 o'clock. Very quiet and comfortable. Reaction well-established. Has slept a little. Took some milk porridge. 2 A. M. Has been quiet during the last two hours, and has taken short naps. Pulse 115 to 120, intermitting 5; respiration 24, easy and regular; 3ijss urine. Took a little porridge. 5 A. M. Pulse 120; respiration 24; urine 3ij.

*August 31—morning after the operation.*—7 o'clock. Has been sleeping. Pulse 120, but slightly intermittent. 9½. Pulse 120, but intermits 16; respiration 20; pupils unaffected by opium; tongue slightly furred; skin natural; expression of countenance cheerful. 12. Pulse 116, with ten intermissions; respiration 18. Elix. Opii gtt. xx. 8 P. M. She remains about the same as in the morning. Pulse 120—intermissions ten; tongue a little whiter. As thirsty as usual after being tapped, but no more so. The urine was drawn off at the hours of 10, 4, and 7—about 3ij each time. Has taken elixir opii gtt. x every second hour; also, once in two hours, two tablespoonfuls of porridge.

*Monday, Sept. 1—Second day after operation.*—8 A. M. Pulse and respiration the same. Brandy 3ss. No tympanites, no increased tenderness of abdomen. Urine at 12 and 6—3ij each time. Has slept on each side. Pupils natural. 4 P. M. Pulse 114, but somewhat irregular; respiration 17. Brandy 3ss. 6¼ P. M. Some pain with eructations. Thinks the brandy disagrees with her. 6½. Vomited. Pil. opii j. 7 P. M. Has been more quiet since vomiting. 10 P. M. A slight flow of blood commenced from the vagina. 12 o'clock. Respiration 16; pulse 113, but weaker. Brandy 3ij.

*Tuesday, third day.*—8 A. M. Pulse intermits every third or fourth



beat. Tongue cleaner. Says she is comfortable. Beef-tea instead of the porridge. 10 P. M. Pulse 118, intermits less. Respiration 20. Pil. opii per rectum. Abdomen looks well; no pain; not much tenderness on pressure. She is cheerful, and the countenance wears a good aspect.

*Fourth day.*—8 A. M. Pulse 108, intermitting 17. Tongue quite clean, and no irritation of stomach. Has chewed a little beefsteak, and has taken beef-tea and brandy at intervals. Vaginal flow increasing. 10 P. M. Pulse 112, but irregular—losing one, two, and three beats. Counting from each intermission it ran thus: 3, 3, 8, 19, 34, 3, 3, 4, 9, 17. Respiration 20. Has been taking brandy  $\mathfrak{z}$ j every hour for several hours. Urine increasing in quantity; skin natural. Vaginal flow increasing.

*Thursday, fifth day.*—8 A. M. Pulse 112, intermissions 12; respiration 17. Takes three tablespoonfuls of beef-tea, and brandy  $\mathfrak{z}$ j, hourly. Urine increasing in quantity; catheter no longer required. Vaginal discharge has ceased.

*Friday, sixth day.*—12 $\frac{1}{2}$  A. M. Had a chill with cold sweat and “a sinking sensation.” Pulse 104, and only slightly intermittent. Brandy  $\mathfrak{z}$ ij. 8 A. M. Comfortable again. Appetite good. Wound dressed.

*Seventh day.*—Pulse 100, steady and no intermissions. Had a very good night; slept well without an opiate.

*Eighth day.*—Three stitches removed. Wound suppurating where the edges of the skin do not meet (between the sutures), but the deeper parts have adhered. Pil. quiniæ gr. j at 11 o'clock, and another at 5. A little restless at night; Pil. opii gr. j.

*Ninth day.*—8 P. M. Had a free alvine evacuation spontaneously at noon, followed by some tenderness of the abdomen. Opium suppository gr. j.

*Tenth day.*—8 A. M. Has taken during the night tinct. opii camph.  $\mathfrak{z}$ ss. Less tenderness of the abdomen. Pulse 110—intermitting every six or eight beats. Urine normal.

*Eleventh day.*—Changed her clothing. The best night yet.

*Thirteenth day.*—Comfortable since last date. Enema administered, and bowels freely moved. Sat up in bed twenty minutes. All the stitches but two removed.

*Sixteenth day.*—Comfortable since last date. Pulse steady at 104.  $\mathfrak{z}$ ij clear fluid oozed out around the ligatures from the peritoneal cavity. Last two sutures removed. 8 P. M. Bowels freely moved. Some dizziness. Has taken no brandy during the last two days, and it was now resumed.

*Nineteenth day.*—Was called to see her at 1 A. M., because “she seemed stupid, and it was difficult to arouse her.” Quiniæ gr. ss., brandy  $\mathfrak{z}$ ij. Although the bowels had been freely moved by hydrarg. cum cretâ and rheum, and injections yesterday, the dizziness and headache increased. The tongue was red, and becoming more and more dry. Feeling sure that these symptoms were due to the presence of decomposing fluid in the peritoneal

cavity, I decided to wash out that cavity. Accordingly at 10 P. M. I passed an elastic bougie (No. 5) into it by the side of the five ligatures; applied to the tube a syringe, and injected a quart of the artificial serum before described, at a temperature of 98° (Fahren.), and then changing the position of the patient, and depressing the outer end of the bougie so as to bring it to a lower level than the other extremity in the peritoneal cavity—thus rendering the tube a syphon—about three pints of very fetid fluid were discharged in the course of an hour.

As it was found necessary to repeat this operation from one to three times daily for the next fifty-eight days, and, as this was the important and peculiar feature of the case, I will give the results in as brief a form as possible, omitting the minor details of the patient's progress.

*Twentieth day.*—Injected two quarts of the solution, and it ran out turbid and fetid, but not quite as much so as yesterday. Pulse 106; tongue better; appetite good. Liqr. sodæ chlorinatæ gtt. v, quâque sextâ horâ sumendæ. 8 P. M. Injected Oij of the solution, and left it to run out through the syphon.

*Twenty-first day.*—Syphon has discharged during the night Oijj of thick, creamy-looking, very fetid fluid. She feels better. Pulse 100; less thirst than for several days; appetite good. 7 P. M. Oij injected, and left to run out.

*Twenty-second day.*—10 A. M. Slept well last night. Has been passing limpid urine freely every few hours. Bowels moved once naturally. Washed out the peritoneal cavity four times—injecting Oj each time—and drawing it out with the syringe. The fluid ran out quite clear the last time. 7 P. M. Ojss of the solution injected at once and left to flow out. It had very little odour, but the operation was repeated in the evening.

*Twenty-third day.*—10 A. M. Pulse 110, and good. Two semi-fluid evacuations from the bowels since last report. Tinct. opii camph. ʒj. Appetite good. While introducing the tube a fetid gas escaped through it. Injected as usual, but the fluid that came away was not very fetid. Pulse, after injection, 104. 8 P. M. Before injecting, applied the syringe to the tube and drew off Oj of somewhat fetid fluid; then injected Ojss, and left to flow out through the syphon. Pulse before injecting 110; afterwards 104. Best day yet.

(The bowels were moved naturally once a day after this date.)

*Twenty-fourth day.*—10 A. M. Drew off Oss of thick, creamy-looking fluid, by suction with the syringe. Then injected as before. 8 P. M. Drew off ʒiv, very nearly, of thick fluid—not fetid, but quite offensive. Then injected as before.

*Twenty-fifth day.*—A. M. The fluid drawn off by the syphon last night was quite transparent. Injected Ojss, and, on raising her up in bed, a somewhat thicker fluid came away. Tinct. opii camph. ʒj. 8 P. M. She

was fatigued by the prolonged operation of the morning, but is better now. Fluid comes away clearer after the injection.

*Twenty-sixth day.*—A. M. Pulse 100, good; tongue do. Syphon fluid clearer during the night.  $\text{Zij}$  drawn by suction—offensive, but thinner. No gas escapes around the tube. One ligature, the highest on the pedicle of the left side, removed.

*Twenty-seventh day.*—About  $\text{Ziv}$  of the thick fluid by suction; but  $\text{Zij}$  of the solution was injected and left in last night. Hitherto the tube had been removed each time after being used, but as the opening through the abdominal wall was getting smaller, and as the introduction of the tube was beginning to cause considerable pain, it was now allowed to remain in, and was seldom afterward removed during the entire period of her convalescence. Being satisfied also that the albumen in the solution underwent decomposition on commixture with the fetid fluid in the peritoneal cavity, I henceforth used the following solution: R. Liqr. sodæ chlorinatæ  $\text{fZj}$ , sodii chloridi  $\text{Zj}$ , aquæ Oj. M.—instead of the one before mentioned; and I had reason to be perfectly satisfied with the change.

*Twenty-eighth day.*—Fluid drawn out clearer and odourless. Says she has noticed, during the last two or three days, an escape of air from the vagina in puffs, and also a whitish discharge, about one drachm, three times a day, for about one week. I feared the fetid accumulation in the abdomen had caused ulceration through the vaginal wall, but, on examination, found this was not the fact.

*Twenty-ninth day.*—A. M. Passed a good night.  $\text{Zij}$  of odourless but thick fluid by suction. P. M.  $\text{Zj}$  by suction. Injected fluid ran off clear.

*Thirtieth day.*—Pulse about the same, 104. The tube causes some irritation, and about  $\text{Zj}$  of healthy pus has been discharged around it.  $\text{Zij}$  of the creamy fluid by suction, but there is no offensive odour. Other ligatures not loose yet.

At this time I returned to New York, leaving Mrs. S. under the care of Prof. Albert Smith, of the N. H. Medical Institution, and to him and to the husband of the patient I am indebted for the remainder of this report. I advised them to continue the injections daily, once or twice according to the character and the quantity of the fluid removed, and as long as it continued to be fetid. This was done; the patient always feeling an immediate benefit from each washing out, and relapsing into a languid state if the operation was omitted or too long deferred.

*Sept. 30.* A. M. pulse 100;  $\text{Zij}$  of the peculiar fluid by suction, and in the evening a like amount. Sat up in bed to eat, for the first time.

*Oct. 6.* The amount of fluid in the abdomen has been slowly decreasing; only  $\text{Zjss}$  has accumulated in twenty-four hours.

*16th.* The abdominal walls have contracted to such an extent that only  $\text{Zij}$  of the dilute solution of chlorinated soda can be conveniently injected



and retained. Since the 6th inst. the experiment has been tried of drawing out all the matter and omitting the injection; but the fetor increased to such an extent that the solution of soda was resorted to again. Sat up to-day in a chair half an hour. Pulse 100. Appetite good. Bowels constipated for several days; moved by enema. Pil. rhei comp. iij produced no effect.

27th. Sits up an hour or two at a time, and walks across the room once or twice. Only 3j of thick fluid removed by suction. Pulse 98.

28th. *Fifty-ninth day.*—She was placed on a mattress in a covered carriage to-day, and carried to her home, twelve miles distant. The journey caused some fatigue, but otherwise no inconvenience.

Nov. 6. Remaining four ligatures were removed. Mr. Smith remarks in a letter: "I think they were held by the knot on the inner side of the abdomen, as pulling has caused no pain for a week past."

From this time onward she gained gradually in strength, her convalescence being interrupted only by a severe attack of constipation and colic, which caused no little apprehension, but she was very skilfully treated by Dr. Worcester (before mentioned), and finally relieved. Less and less matter was drawn from the peritoneal cavity until Nov. 14th, when none whatever could be obtained.

On the 16th of November, seventy-eight days after the operation, her husband writes: "With the consent of Dr. Worcester, I have this morning removed the tube and closed up the opening." The injections had thus been used for fifty-nine days in succession, or from the nineteenth to the seventy-eighth day after the operation.

Jan. 1, 1863. Mrs. S. wrote me to present the compliments of the season, and said she had as few aches and pains as the majority of people have; and up to the 13th of March I hear of her continuing in good health.

*Remarks.*—1. Successful cases of double ovariectomy are very rare. The first case reported in this country, I think, was one of my own; the operation having been performed nearly twelve years previously to the one now under consideration. In that instance<sup>1</sup> the patient was 24 years old, and unmarried; and it may not be uninteresting to add here, by way of completing the record of that case, that she married about a year after the operation; that she has, of course, never menstruated since that time, nor conceived. She has, however, enjoyed uniform good health, never having had even headaches, periodical or otherwise. With the two exceptions above specified, she is capable of fulfilling *all* the functions attributable to her sex. Neither her external physical conformation nor her mental characteristics have undergone any change in consequence of the absence

<sup>1</sup> See this Journal for April, 1851.

of the ovaries. She is in all respects now, at the age of 36, a splendidly developed woman.

2. The use of large injections into the peritoneal cavity has never been before resorted to, so far as I am aware, except in a case of my own, reported in this Journal<sup>1</sup> seven years ago. It became quite evident after ten days' use of the injections, that this patient's life might be prolonged, other circumstances remaining unchanged, so long as the peritoneal cavity was kept thoroughly cleansed. But it became at length a source of anxiety to know when this necessity might cease to exist. During the last week of their application before I left the patient (*i. e.* up to the seventeenth day of their use), the quantity and the quality of the fluid in the cavity had undergone but very little change. In my first case the injections were continued for only seven days. In the present case they were finally found to be required from one to three times daily, for *fifty-nine days* in succession. In that case I always used the artificial serum before described; in this case the albumen in it underwent decomposition, and a solution of common salt and chloride of soda was found not to be liable to this objection.

3. I have no hesitation in attributing the recovery of this patient (as well as that of the one just alluded to) to the use of the peritoneal injections. The recurrence of the grave symptoms was so certain and so rapid, whenever they were too long delayed, as to leave no doubt on this point. Nor do I doubt that death has occurred after many unsuccessful operations of ovariectomy, from the presence of decomposed fluid in the peritoneal cavity. Had I not resorted to this expedient, I am confident I should have lost two cases out of five. Having done so, all my cases, up to the present time, have been successful. Of course the liability to such accumulations of fetid fluid is confined more exclusively to cases of ovarian tumours combined with ascites. Both of my cases were of that class. It is deemed important to recognize this cause of a fatal termination of the operation under consideration, and to have demonstrated the practicability of its removal.

4. It is interesting to notice the tolerance of a decomposed fluid in contact with it, which was manifested in this case by the peritoneum. The fluid gradually accumulated to not less than a gallon, and was excessively fetid; yet no decided symptoms of poisoning manifested themselves till the nineteenth day after the operation. This shows that absorption from the diseased peritoneal surface is very slow; though it also appeared that it becomes more rapid when the poison has once entered the circulation. And hence the necessity of removing the fluid daily, till all excess of the peritoneal secretion and all decomposition have subsided.

5. The vaginal flow which occurred forty-eight hours after the operation and continued sixty hours, must not be accepted as an attempt at menstruation.

<sup>1</sup> See the No. for Jan. 1856.

ation. It occurred in the first of my cases also, and is merely a hemorrhage resulting from the uterine congestion produced by the ligatures. It is, however, a favourable sign, since by relieving congestion, it diminishes the probability of the supervention of inflammation after the operation. A free secretion of urine is also, in this sense, a favourable symptom.

6. I have also used the gum elastic bougie as a *syphon*, in the operation of paracentesis thoracis. The fluid is thus most thoroughly removed.

7. I still attach importance to the use of the *artificial serum* in ovariectomy; and to the elevated temperature and moisture of the air of the apartment, on opening the peritoneal cavity.

8. I prefer the ligature to the *clamp* in all cases. In the present case the latter could not possibly have been applied to the right pedicle; and I know of no case in which either the clamp is for any valid reason to be preferred, or the ligatures are for any valid reason objectionable. Both are used to prevent hemorrhage; and certainly the latter are more reliable than the former in this point of view. And if the clamp is sooner detached, the ligatures, on the other hand, do no harm by remaining. In one of my cases a ligature remained four and a half months without producing the least sign of inflammation, or irritation even, of the peritoneum.<sup>1</sup> It was doubtless held, during most of the time, by granulations in the abdominal walls. I make the ligature of three threads of saddlers' silk, *waxed, but not twisted*.

9. The use of powerful narcotic doses (as advised by some) during the first two or three days after the operation, I consider unjustifiable.

NEW YORK, March, 1863.

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ART. VII.—*Analysis of Ninety-three cases of Labour which came under the care of the Author.* By JAMES N. FRASER, M. D., L. R. C. S. Edinburgh, of St. John's, Newfoundland. (Communicated to the "Boston Society for Medical Improvement.")

I. *The number of cases.*—The total number of cases was ninety-three, not including any cases of miscarriage. It must be understood, however, that these do not represent ninety-three different women, as some of the patients came under my care two or more times.

II. *The ages of the women.*—The total ages of the women amounted to 2,645 years, the average age for each being  $28\frac{1}{2}$  years. The following

<sup>1</sup> In this case also the bougie remained almost constantly for fifty-one days (from the 27th to the 78th).



table exhibits, in detail, the number of patients delivered, with their respective ages:—

Ages of the women.	Number of women.	Ages of the women.	Number of women.
21 years . . . .	1	32 years . . . .	7
22 " . . . .	4	33 " . . . .	2
23 " . . . .	9	35 " . . . .	1
24 " . . . .	4	36 " . . . .	5
25 " . . . .	7	37 " . . . .	1
26 " . . . .	13	38 " . . . .	1
27 " . . . .	4	40 " . . . .	1
28 " . . . .	15	44 " . . . .	1
29 " . . . .	8	45 " . . . .	1
30 " . . . .	5		
31 " . . . .	3	Total,	93

III. *The duration of labour.*—The total duration of labour, calculating as precisely as I could from the first commencement of the pains, amounted to 1,249 hours. The average duration of each case was  $13\frac{1}{2}$  hours, being half an hour longer than the average duration in 311 cases occurring in the Edinburgh Maternity Hospital, and recorded by Professor Simpson, of Edinburgh.

The following table shows the duration of the whole labour in each case:—

Duration in hours.	Cases of labour.	Duration in hours.	Cases of labour.
1 . . . .	in 1 case	13 . . . .	in 1 case
$1\frac{1}{2}$ . . . .	1 "	14 . . . .	8 cases
2 . . . .	2 cases	15 . . . .	2 "
$2\frac{1}{2}$ . . . .	2 "	16 . . . .	1 case
3 . . . .	2 "	18 . . . .	1 "
4 . . . .	8 "	20 . . . .	2 cases
$4\frac{1}{2}$ . . . .	1 case	23 . . . .	1 case
5 . . . .	2 cases	24 . . . .	10 cases
6 . . . .	10 "	25 . . . .	1 case
7 . . . .	3 "	26 . . . .	2 cases
8 . . . .	4 "	36 . . . .	3 "
9 . . . .	5 "	42 . . . .	1 case
10 . . . .	2 "	48 . . . .	1 "
11 . . . .	2 "		
12 . . . .	13 "	60 . . . .	1 "

IV. *The number of pregnancies.*—The total number of pregnancies for the ninety-three women (not including miscarriages, of which I have no information) amounted to 175—the average number being  $1\frac{7}{8}$ , and the percentage  $188\frac{1}{3}$ . The following table exhibits the number of cases, with the corresponding number of the pregnancy in each; by which it will also be observed that first deliveries constitute one-third of the whole:—

Number of the pregnancy.	Number of women.	Number of the pregnancy.	Number of women.
1 . . . .	31	7 . . . .	1
2 . . . .	25	8 . . . .	2
3 . . . .	13		
4 . . . .	11	11 . . . .	1
5 . . . .	4		
6 . . . .	5	Total,	93

V. *The number of children.*—The children resulting from the 93 labours at the full time (with the exception of two premature cases) were 99 in number. Of these, there were born—

In single births . . . . .	87
In twin “ . . . . .	12
Total,	99

VI. *The sex of the children.*—Of the ninety-nine children, 53 were males and 46 females; or, 57 per cent. of the former and  $49\frac{4}{9}$  of the latter: of the whole number,  $106\frac{4}{9}$  per cent. These facts, with the proportion and percentage of still-births, are exhibited in the following table:—

Sex of the child.	No. of children.	No. born alive.	No. born dead.	Proportion of still-births.	Per-centage.
Male . . .	53	47	6	1 in every 9	$11\frac{1}{9}$
Female . . .	46	40	6	1 in every 8	$13\frac{1}{3}$
Total,	99	87	12	1 in every 8	$12\frac{4}{9}$

Of these still-births there were born—

Under cranial presentations . . . . .	6
“ breech “ . . . . .	2
“ hand “ . . . . .	1
“ elbow “ . . . . .	1
“ shoulder “ . . . . .	1
“ side “ . . . . .	1
Total,	12

In one of the cases of still-birth under cranial presentation the cord was wound thrice around the child's neck; in two others delivery was preceded by uncontrollable vomiting; in one of these labour was premature. In a fourth, delivery was effected by craniotomy. In one of the cases under breech presentation the mother had convulsions during labour; in the second there was prolapse of the cord. In the case of shoulder presentation labour was premature; and in that of the side there was prolapse of the cord. In the case of elbow presentation the child was a twin male. None of the children were born putrid.

VII. *The modes in which the children presented.*—The following table shows in detail the different kinds of presentation, and the number of each respectively, with the percentage:—

Presentation.	No. of cases.	Percentage.	Presentation.	No. of cases.	Percentage.
Head . . .	85	$85\frac{8}{9}$	Side (left) . . .	1	$1\frac{1}{9}$
Breech . . .	4	$4\frac{4}{9}$	Head and hand . . .	1	“
Hand . . .	1	$1\frac{1}{9}$	Breech and cord . . .	1	“
Elbow . . .	1	“	Side and cord . . .	1	“
Shoulder . . .	1	“	Head and cord . . .	1	“
Foot . . .	1	“			
Face . . .	1	“	Total,	99 cases.	

There was not a case of presentation of placenta, partially or entire.

VIII. *Plural births*.—Out of the ninety-three cases 6 women, or 1 in every 15, gave birth to twin children, which appears to me to be a very high average. The percentage in these cases amounted to  $6\frac{1}{2}\frac{4}{1}$ . The following table exhibits the state and presentations of the twelve children in the six twin cases :—

Presentation.	No. of cases.	No. of children born alive.	No. of children born dead.
Double cranial presentation . . . . .	3	6	0
1st child, foot; 2d child, head . . . . .	1	2	0
1st child, head; 2d child, breech . . . . .	1	2	0
1st child, head; 2d child, elbow . . . . .	1	1	1
Total, . . . . .	6 cases, or	11	1
" . . . . .	12 children.		

The average mortality in the twin cases was 1 in 12, and the percentage  $8\frac{1}{3}$ . The sexes of the twin children were as follows :—

In 2 cases, both children male . . . . .	4
In 2 cases, both children female . . . . .	4
In 2 cases, 1st child male, 2d child female . . . . .	4
Total, 6 cases. . . . .	12

Thus in the twin cases there was an equal number of male and female children.

IX. *The mode of delivery*.—The following table shows the number and percentage of those delivered naturally and by artificial means :—

Mode of delivery.	No. of cases.	Percentage.	Proportion.
By natural pains . . . . .	75	$80\frac{2}{3}\frac{0}{1}$	1 in $1\frac{1}{5}$
By artificial means . . . . .	24	$25\frac{2}{3}\frac{1}{1}$	1 in 4
Mode of artificial delivery.			
By podalic version . . . . .	4	$4\frac{2}{3}\frac{3}{3}$	1 in 23
By cephalic version . . . . .	1	$1\frac{7}{9}\frac{1}{3}$	1 in 93
By forceps . . . . .	18	$19\frac{1}{3}\frac{1}{1}$	1 in 5
By craniotomy . . . . .	1	$1\frac{7}{9}\frac{1}{3}$	1 in 93

Turning was adopted in three cases for preternatural presentations, and in one where labour was premature, and was preceded by uncontrollable vomiting; in this case the head was almost beyond reach, and great difficulty was experienced in attempting to apply the forceps; consequently, turning was had recourse to in order to hasten delivery. In the case of cephalic version labour was premature, and the foetus was malformed.

X. *The instrumental deliveries*.—It will be observed from the foregoing table that the forceps were used in an unusually large proportion of cases, and my principal object in drawing up these papers is to show the utility and comparative safety in the early and careful application of these instruments, unless there be some positive contraindication to their use. It will be seen by referring to the general statistical table, that all the mothers



delivered by the forceps recovered, and only two of the children delivered by the same means were born dead; and in one of these cases labour was premature, and in the other of sixty hours' duration; so that in neither case can the death of the child be attributable to the use of instruments. I dare say that in some of these cases the administration of ergot and the use of other stimulating means might have been sufficient to effect delivery; but I believe the adoption of such measures would be more likely to prove injurious to both mother and child than the early and careful use of the forceps, as labour would thereby be prolonged and, consequently, the danger to mother and child become greater; there would also be a greater probability of complications arising. These views, I think, are borne out by the following recognized principles in midwifery: 1. "The maternal mortality attendant upon parturition increases in a ratio progressive with the increased duration of labour. 2. The infantile mortality attendant upon parturition increases in a ratio progressive with the increased duration of labour. 3. The mortality to the infant and mother is *tenfold* greater in labour prolonged than in labour terminated within twenty-four hours. 4. The liability to most of the morbid complications connected with labour becomes increased in proportion as the labour is increased in duration. 5. The danger of instrumental delivery depends more upon the previous duration of labour than upon the operation employed." (Professor Simpson's Lectures, 1851-52.) Now it will be observed (general statistical table) that where the forceps were used labour was completed within twenty-four hours in two-thirds of the cases, and no injurious after-effects followed in any of these cases; and convalescence was protracted in only two of the whole number. In one of these cases the patient suffered from ante and post-partum hemorrhage, and miscarried about six months prior to delivery, there having been twin conceptions, one *fœtus* dying. The other was a case of twin labor, where one child presented by the elbow and was turned, so that in this case the injurious after-effects were more likely owing to the manual than to the instrumental interference. In my practice I have not confined myself to the rules and regulations so specially laid down in some obstetrical works for our guidance in the use of the forceps, nor do I believe these to be so essential or of so much importance as they are said to be. I may remark that I have always used Simpson's long forceps.

Craniotomy was had recourse to in one case where the head of the child was arrested at the "brim," in consequence of contraction of the conjugate diameter. In this case I first tried to deliver by turning—brought down a foot, but completely failed in delivering. I have a full record of the case, which I will be happy to communicate if thought of sufficient value.

XI. *The complicated labours*—The following table contains a list of the complications observed in the foregoing cases, with the respective numbers, proportion, and percentage of each. There are four cases of "slight

disproportion" mentioned in the table—such a condition ought not, perhaps, strictly speaking, to be considered as a "complication"—nevertheless they were cases where I thought it advisable to use the forceps at an early stage of labour.

Complication.	No. of cases.	Proportion.	Percentage.
Convulsions . . . . .	2	1 in $46\frac{1}{2}$	$2\frac{1}{9}\frac{4}{3}$
Hemorrhage . . . . .	3	1 in 31	$3\frac{7}{8}\frac{7}{1}$
Puerperal fever . . . . .	4	1 in 23	$4\frac{2}{9}\frac{8}{3}$
Contraction at brim . . . . .	3	1 in 31	$3\frac{7}{8}\frac{7}{1}$
Inertia of uterus . . . . .	4	1 in 23	$4\frac{2}{9}\frac{8}{3}$
Rigidity of os . . . . .	2	1 in $46\frac{1}{2}$	$2\frac{1}{9}\frac{4}{3}$
Syncope . . . . .	2	1 in $46\frac{1}{2}$	$2\frac{1}{9}\frac{4}{3}$
Malpresentation . . . . .	6	1 in 15	$6\frac{1}{3}\frac{4}{1}$
Uncontrollable vomiting . . . . .	2	1 in $46\frac{1}{2}$	$2\frac{1}{9}\frac{4}{3}$
Slight disproportion . . . . .	4	1 in 23	$4\frac{2}{9}\frac{8}{3}$
Prolapse of cord . . . . .	3	1 in 31	$3\frac{7}{8}\frac{7}{1}$
Total,	35		$37\frac{5}{9}\frac{9}{3}$

I omitted mentioning that one of the mothers died; in this case there was an extremely torpid state of the bowels, which could not be brought into action by any means. This serious condition was followed by alarming and uncontrollable vomiting, which persisted for four or five days. Labour, which was premature, supervened, and to hasten delivery the child was turned; but the patient died twenty-eight hours afterwards. I am of opinion that the fatal issue was not consequent upon parturition, but was the result of prior prostrating causes. In conclusion, I have only to observe that the ninety-three cases of labour were recorded consecutively as they occurred in my practice, none having been *selected*; therefore, the data upon which the preceding calculations have been based may be relied upon, as all the patients came under my own immediate care and observation, and the particulars regarding them were recorded at the time of their occurrence.

P. S. I have to acknowledge my indebtedness to Professor Simpson's obstetric works (first series) for the construction of most of the preceding tables.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presenta- tion.	Duration of Labour.	Mode of Delivery.	Nature of Complica- tion.	Sex of Child.	Recovery of Mother or death of	Life or death of Child.	REMARKS.
1	1	26	Head	About 12 h's	Natural pains		M.	Recovery	Alive	Convalescence uninterrupted.
2	1	22	"	20 "	" "		M.	"	"	Convalescence satisfactory in every respect.
3	2	29	Breech	7 "	" "	Convulsions	F.	"	Dead	Made a wonderfully rapid recovery. Had convulsions with first child also.
4	3	31	Head	4 "	" "	Puerperal fever, &c.	M.	"	Alive	Puerperal fever very severe. After its subsidence nearly died of dysentery. Had convulsions with first two children. This child died of convulsions when three months old. Under all circumstances convalescence was wonderfully rapid.
5	2	23	"	6 "	" "		M.	"	"	Convalescence uninterrupted.
6	1	27	"	12 "	" "		F.	"	"	This patient had convulsions with first two children. Puerperal fever and dysen- tery with third (cases 2 & 4). In the present instance the liquor amni escaped sixteen hours before delivery. Uterine action very strong. Recovery rapid.
7	4	32	Hand	24 "	Podalic version	Malpresentation	F.	"	Dead	There was no sign of external or internal hemorrhage. Syncope lasted four hours. Had a similar attack with first child. I think, arose from "shock." Con- valescence tedious, but otherwise satisfactory.
8	2	24	Head	16 "	Natural pains	Alarming syncope	M.	"	Alive	Convalescence uninterrupted.
9	1	22	"	12 "	" "		M.	"	"	Recovery rapid, and very satisfactory.
10	5	33	"	6 "	" "		M.	"	"	Retention of placenta from "hour-glass contraction." No injurious after effects followed delivery. Patient lived twelve miles from town. Made an excellent recovery.
11	1	26	"	60 "	Forceps	Inertia of uterus	M.	"	Dead	Convalescence normal. Child died when 3 months old. Suffered from diarrhoea, &c.
12	1	23	"	20 "	Natural pains		M.	"	Alive	Convalescence uninterrupted.
13	1	25	"	14 "	" "		F.	"	"	Had very severe convulsions during first labour (child living). Convalescence rapid.
14	2	26	"	12 "	" "		F.	"	"	Recovered without any untoward symptom.
15	1	28	"	36 "	" "	Rigidity of os	F.	"	"	About 6 months prior to delivery miscarried, so that there must have been "twin conception," one fetus dying. Patient was extremely nervous. Convalescence protracted—child died shortly afterwards.
16	2	29	"	24 "	Forceps	Ante. P. part. he- morrhage	F.	"	"	Convalescence quite satisfactory.
17	3	32	"	10 "	Natural pains		F.	"	"	No bad symptom followed; convalescence very satisfactory.
18	4	40	"	36 "	Forceps		M.	"	"	Convalescence normal.
19	3	29	"	12 "	Natural pains	Contr ant. post. diam.	F.	"	"	Recovery uninterrupted.
20	1	26	"	12 "	" "		M.	"	"	Of lax habit of body; labour easy; made an excellent recovery.
21	2	23	"	14 "	" "		F.	"	"	Convalescence uninterrupted. Had to discontinue nursing child.
22	1	26	"	6 "	" "		M.	"	"	Recovery uninterrupted.
23	2	23	"	8 "	" "		F.	"	"	Made an excellent recovery.
24	2	28	"	9 "	" "		M.	"	"	Had similar with two former labours. Mother was seized in the same way, and died, so far as I could learn from "shock." Convalescence in present case pro- tracted.
25	3	26	"	14 "	" "	Alarming syncope	F.	"	"	Of very delicate constitution, but made an excellent recovery.
26	1	21	"	24 "	" "		M.	"	"	



No. of Case.	No. of Pregnancy.	Age of Patient.	Presentation.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery of Mother.	Life or death of Child.	REMARKS.
27	1	22	Head	9 hrs	Natural pains		F.	Recovery	Alive	Convalescence normal.
28	2	25	"	12 "	" "		M.	"	"	Made a very good recovery. Child delicate; died of bronchitis when three or four months old.
29	1	28	Elbow and head	24 "	1st turned, 2d forceps	Malpresentation and peritonitis.	M.F.	"	Boyd g. liv.	Convalescence very tedious, but got quite well. Tried "Marshall Hall's method" with boy, but failed.
30	1	25	Head	14 "	Natural pains		M.	"	Alive	Recovered rapidly.
31	2	30	"	24 "	Forceps	Slight contr. of brim	M.	"	"	Made a very good recovery.
32	1	32	"	48 "	"	Inertia of uterus, and twins	F. 2	"	"	This patient had been under the care of a "midwife." When I visited her, labour was quite "powerless." Recovered rapidly. Subsequently suffered from "mammary abscess."
33	1	29	Breech	26 "	Natural pains	Prolapse of cord	M	"	Dead	Had been under care of a "midwife." Made a very good recovery.
34	1	28	Head	8 "	"		F	"	"	Convalescence protracted; patient nervous and irritable; cord thrice round child's neck.
35	2	27	Shoulder	12 "	Cephalic version	Malpresentation	F.	"	"	In this, as in case 34, labour was premature, 7th and 8th month. Made a good recovery.
36	1	22	Left side	25 "	Podalic version	Malpres. & pro. of c'd	M.	"	"	Had great difficulty in delivering the head. Made an excellent recovery.
37	6	35	Head	5 "	Natural pains		M.	"	Alive	The liquor amni escaped 48 hours prior to the supervention of labour pains. No hemorrhage. Recovery rapid. Child apparently dead; restored by "Marshall Hall method," preserved for 30 minutes.
38	4	28	"	10 "	"	Slight hemorrhage	M.	"	"	The liquor amni, as in case 37, escaped two days prior to the occurrence of labour pains. There was slight hemorrhage. Ergot had no effect in inducing uterine action; neither had it any injurious effect on child.
39	1	26	"	2 1/2 "	"	Twins	F. 2	"	"	There was only one placenta. Recovered rapidly. Subsequently suffered from mammary abscess.
40	2	28	"	9 "	"		M.	"	"	Child weighed 9 1/2 pounds. No liquor amni escaped until after expulsion of fetus. Of this I am certain, as I was in close attendance upon the case from the commencement of labour. How explained? Recovery good.
41	3	24	"	14 "	"		M.	"	"	Uninterrupted convalescence.
42	1	29	"	23 "	"		F.	"	"	Made a good recovery.
43	4	28	"	12 "	"		M.	"	"	Recovered without any untoward symptom.
44	2	32	Breech	6 "	"	Conv'l & hæmoptysis	F.	"	"	Convalescence uninterrupted.
45	1	25	Head	7 "	"		M.	"	"	Suffered from abdominal pain and hemorrhoids for some time afterwards, but got quite well.
46	3	30	"	4 "	"		M.	"	"	Made an excellent recovery.
47	1	29	"	11 "	"		M.	"	"	Convalescence rapid.
48	4	36	"	12 "	"		F.	"	"	Made a good recovery.
49	1	28	"	35 "	Forceps		M.	"	"	Pains irregular and inefficient. Passage unusually small. Made a very good recovery.
50	4	38	"	6 "	Natural pains		F.	"	"	Last stage of labour extremely rapid. Convalescence normal.
51	2	28	"	4 1/2 "	"		M.	"	"	Convalescence uninterrupted.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presenta- tion.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery of Mother.	Life or death of Child.	REMARKS.
52	2	28	Head	18 hrs	Natural pains	Severe vomiting and purging.	M.	Recovery	Alive	Eighteen months previously had a miscarriage caused by a blow. Recovery good. Had a severe attack of measles a week before, followed by bronchitis, and then vomiting and purging. I proposed inducing labour, which, however, occurred naturally, and was aided by ergot. Vaginal passage very small. She suffered from gastric and intestinal irritation for three weeks. Got quite well.
53	1	26	"	24 "	" "	"	F.	"	Dead	"
54	2	23	"	4 "	"	Malpresentation	F.	"	Alive	Pains regular and severe, but no advance. Liquor amni escaped 11 hours before delivery. Recovery good.
55	1	23	Face	15 "	Forceps	"	F.	"	"	1st presented by head, 2d by breech. There were two separate placentae. Con- valescence uninterrupted.
56	6	33	Head and Breech	3 "	Natural pains	Twins	M. 2	"	"	Convalencece uninterrupted.
57	4	30	H. & hand	12 "	"	Malpresentation	F.	"	"	Of a very nervous temperament. Made a good recovery.
58	3	25	Head	3 "	"	"	M.	"	"	Had no attack of syncope as on former occasions. Convalencece uninterrupted.
59	4	27	"	4 "	"	Ante partum hem'ge	F.	"	"	Made an excellent recovery. Was only an hour and a half ill in first labour.
60	2	26	"	1 "	"	"	M.	"	"	The 1st presented by the foot, and was born 5 hours before the 2d, which was delivered with membranes entire. There was only one large placenta. Made a very good and rapid recovery.
61	6	36	Foot and head	8 & 13	Forceps (2d)	Twins and S. dis.	M. F.	"	"	Pains very severe; parts unyielding; passage small. Made a good recovery. Recovered rapidly, and without any untoward symptom.
62	1	23	Head	24 "	Natural pains	Labour powerless	M.	"	"	Convalencece uninterrupted. There was only one placenta.
63	5	32	"	24 "	Forceps	Twins	M. 2	"	"	The liquor amni, as before, escaped two days prior to delivery. After-pains very severe, caused by "clots." Slight abdominal irritation for a few days. Recovery satisfactory.
64	3	27	"	12 "	Natural pains	"	F.	"	"	Patient very delicate. Made an excellent recovery.
65	7	36	"	10 "	"	"	M.	"	"	After-pains very severe. Made a good recovery.
66	2	23	"	5 "	"	"	F.	"	"	Besides being 11 times pregnant going to full period, had 10 miscarriages. Suf- fered from slight syncope for a few hours after delivery, otherwise convalescence was uninterrupted.
67	8	36	"	6 "	"	"	M.	"	"	Convalencece uninterrupted.
68	11	45	"	11 "	"	"	F.	"	"	Liquor amni unusually great in quantity; after-pains very troublesome. Made a good recovery.
69	2	26	"	4 "	"	Prolapse of cord	M.	"	"	Convalencece uninterrupted.
70	5	29	"	6 "	"	"	F.	"	"	Liquor amni unusually great in quantity; after-pains very troublesome. Made a good recovery.
71	3	29	"	2 "	"	"	M.	"	"	Convalencece uninterrupted.
72	1	23	"	4 "	"	"	F.	"	"	Recovered rapidly—child very small—had jaundice; but was soon convalescent.
73	2	31	"	12 "	Forceps	Slight disproportion	M.	"	"	Pains during last four hours very severe, but ineffectual. Convalencece uninter- rupted.
74	2	32	"	2 "	Natural pains	"	M.	"	"	Recovery normal.
75	2	26	"	4 "	"	"	M.	"	"	Labour very severe—child large. Made an excellent recovery.
76	1	28	"	15 "	Forceps	"	M.	"	"	No advance after head had entered fully into "cavity." Made an excellent re- covery. The cord was thrice round the child's neck.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presenta- tion.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery or death of Mother.	Life or death of Child.	REMARKS.
77	1	25	Head	24 hrs	Forceps	Inertia of uterus	F.	Recovered	Alive	Head stationary in vaginal cavity. Patient lived 14 miles from town. Made a good recovery. Liquor amni escaped 8 hours prior to delivery. Convalescence Pains inefficient. Uninterrupted.
78	1	25	"	26 "	"	"	F.	"	"	Slight shock followed delivery, but it soon passed off. Recovered rapidly.
79	2	30	"	24 "	Natural pains	"	F.	"	"	Recovery normal. Some time afterwards suffered from severe pain along course of right ureter.
80	3	26	"	4 "	"	"	M.	"	"	Pains were regular and tolerably severe, but inefficient. Recovered rapidly.
81	1	28	"	14 "	Forceps	Slight disproportion	F.	"	"	Suffered from fissured nipples; otherwise made an excellent recovery.
82	3	30	"	6 "	Natural pains	" peritonitis	F.	"	"	Pelvic abscess and great edema of the legs followed puerperal fever. The patient continued for a long period in a critical state. Pus escaped in large quantities per vaginam. Examined with speculum, but could not detect anything abnormal.
83	5	44	"	24 "	Craniotomy	Contract long diam. and puerperal fever	M.	"	Dead	Ultimately got well. ( <i>Have a full report of case.</i> )
84	6	31	"	6 "	Natural pains	"	F.	"	Alive	Convalescence uninterrupted. Had a miscarriage twelve months previously.
85	4	26	"	14 "	"	"	M.	"	"	Last labour extremely severe, and, I think, os uteri was slightly ruptured ante-
86	3	23	"	42 "	Forceps	Rigidity of os	M.	"	Dead	riorly, judging from feelings and symptoms as explained by patient. Head made no advance after entering cavity of pelvis; then used forceps. Placenta very much enlarged, and extremely soft and lacerable. Recovered rapidly.
87	6	36	"	8 "	Natural pains	"	M.	"	Alive	Convalescence very satisfactory. Cord twice around child's neck.
88	2	24	"	9 "	"	"	M.	"	"	Rapid convalescence. Was extremely ill with first child (Case 53).
89	2	28	"	6 "	"	"	M.	"	"	In this case labour was premature, 7th month; a severe attack of bronchitis was followed by uncontrollable retching and vomiting, and was preceded by a re-
90	3	37	"	14 "	Podalic version	Extreme vomiting, constipation and bronchitis	F.	Died	Dead	markably torpid state of the bowels, which could not be got into action by any means. The fatal issue was not consequent upon labour, but, I believe was the result of the previous bronchitis and vomiting, especially the latter.
91	4	25	"	14 "	Natural pains	"	F.	Recovered	Alive	Pains regular and very severe. During the last three hours no advance whatever
92	4	32	"	7 "	Forceps	Slight disproportion	F.	"	"	was made. Liquor amni escaped four hours before delivery. Applied the for-
93	3	24	"	9 "	Natural pains	"	F.	"	"	ceps, and delivered with facility. Recovered rapidly.



ART. VIII.—*On Silver Wire Ligatures.* Read before the Brodie Med.-Chir. Society, Frederick City, Md., Dec. 1862. By REDFERN DAVIES, of Birmingham, England, now acting Assist. Surgeon, U. S. A.

IN the summer of 1858, being desirous of healing a vesico-vaginal fistula of very large size, I carried out exactly the operative measures advocated by Dr. Marion Sims. But whether from the size of the fistula, from defect in applying his silver clamps and wires, or from some bungling in the operation, I failed completely, although I was at the same time perfectly satisfied with the behaviour both of the clamps and wires.

Three years ago, having to treat a bad case of elephantiasis of the leg, I followed the means of cure first, I believe, both proposed and carried out by Dr. Carnochan. His plan of treatment consisted in cutting off the main arterial supply of blood to the limb, by tying the femoral artery at the apex of Scarpa's triangle. But deeming that I should effect the same result by tying the popliteal artery, and by reason of its being further removed from the trunk of the body, obviate some of the dangers attendant upon ligaturing the femoral, I tied the popliteal artery, and with a silver wire for a ligature. This came away on the twenty-first day, and the result of the operation was an almost complete diminution of the size of the limb to its natural dimensions.

I would particularly draw the attention of this meeting to this case, because it has been considered, both in New York and here, that though silver wire may be useful in tying arteries after amputations, it is not advisable to do so in their continuity. The best, most concise, and accurate description of the effects produced upon an artery by its ligation, that I know of, is in "Mr. Guthrie's Commentaries on the Surgery of the War." He says:—

"Where a round and small ligature is properly applied to an artery of a large size, such as the femoral, the sides of the vessel are brought together in a folded, plaited, or wrinkled manner; the ancient middle and inner coats of the artery, including the modern four, are divided, while the outer one remains entire and apparently unharmed."

"If the ligature be removed, an impression or indentation, made by it on the artery, will remain as a mark; and if the artery be slit open in a careful manner, the division of the inner coats will be obvious."

And again, he says:—

"The inner and middle coats formed by four distinct layers or structures, are not only divided, but the inner ones particularly seem to be curved inwards on themselves, so that the cut edge of one half or side is not applied to its fellow in the usual way of two surfaces, but by curving inward meets its opponent on every point of a circle, and in this way forms a barrier inside that of the external coat, which is tied around it by the ligature; so that in fact when a small ligature is firmly tied, its direct pressure is not applied to the inner coats, which

have been divided and curled away from it, but to the two layers of the outer coat which are in consequence of that pressure made to ulcerate or slough.

"The cut edges of the four inner layers being from this provision of nature perfectly free, are capable of taking on the process of inflammation which stops at the adhesive stage. This they do by the effusion of lymph or fibrin both within and without, to a greater or less extent as the case may require."

I have frequently tested the truthfulness of this description, by examining arteries, after they have been tied with silk, both upon dead and living subjects, and have had occasionally opportunities of doing so after a ligation has been made by a silver wire: the result of my observations has been, that their effects were identical, and that they corresponded with Guthrie's account.

On October 24, 1862, a patient of Dr. Porter's, upon whom I had tied the arteries with silver wire after an amputation of the leg four days previously, died. Within the posterior tibial artery, the only one I was enabled to examine, I found that for half an inch above the site of ligation the blood was firmly coagulated, the internal and middle coats of the artery were uniformly cut through, and that there was as completely organized a structure (as could be expected in so short a time) between and around them.

Allowing, then, that a ligature of silver wire acts as well as a silken one does, is any advantage to be ascribed to it? or is it a mere change of the material constituting the ligature?

I believe that there is a material advantage in a silver wire ligature over the usual silken one.

And that this advantage consists in the capability of silver wire for remaining in tissues nearly if not quite innocuous.

Thus, while the artery is undergoing its process of obliteration, a silver wire ligature does not of itself constitute a focus for purulent secretion, permeating tissues which we are endeavouring to unite by immediate adhesion, and these tissues temporarily weakened by their supply of blood being diminished.

Of the harmlessness resulting from silver wire remaining in living tissue, I have been for some time struck.

In a girl upon whom I operated for staphyloraphy, nearly four years ago, a silver wire still remains; it is the lowest one of three sutures that I inserted; at the time of the removal of the other two, not being satisfied with the union of the soft palate, I permitted it to remain, and was not allowed afterwards to remove it as it occasioned no inconvenience.

Just two years ago, I had operated on a case of vesico-vaginal fistula, by simply uniting the revived edges of the fistule with silver wire sutures. On the tenth day of their insertion I intended to remove them, but from an accident was unable to do so for three months, when I found the case perfectly cured.

In the *London Medical Times* (I think for July, 1859) I have recorded and illustrated by a woodcut of the parts implicated, a case in which I had attempted a radical cure of hernia on a woman. I had operated by the method described in *Druitt's Surgery* as one suggested by me.

The patient on the eighth day after operation died from the consequences of intussusception of the bowel, on the opposite side to the one I had operated upon. The parts implicated in the operative procedure demonstrated well the perfect immunity from inflammatory process with which silver wire had perforated peritoneum even in three places.

In a case which I published in the *Lancet*, July, last year, and which is recopied in *Braithwaite's Retrospect of Med. and Surg.*, I say:—

“A patient, aged 17 years, was admitted into the Birmingham Work-house Infirmary on the 10th of December, 1858. He was the subject of varicocele on the left side, which had existed for three years, and to so great an extent as to prevent him from following his employment.

“Being desirous of radically curing him, I adopted the method of M. Ricord, which I had seen him perform with success, but instead of using the silken ligature which he used, I tried to do the same thing with silver wire, namely, between the vas deferens and the veins I passed, by means of a needle, a double wire; and by the same apertures in the opposite direction, anterior to all the veins, another wire. By engaging one free end through the loop of the other one on both sides, the veins were, by traction on the wire, compressed. This traction was kept up continuously by means of an elastic watch-spring bent in the shape of a horseshoe.

“In ten days' time, thinking the varicocele cured, and wishing to remove the wires, I tried to do so, and found I could not, though it was easy enough with the silken ligatures. I therefore cut off the wires as short as I could, trusting to the innocuity of silver wires to cause no harm. In another week the punctures were well healed, and he was discharged, the varicocele then appearing perfectly cured. Seeing him again in about a year's time, upon examination I found that all things remained as when he left; and he stated that he had resumed his work immediately upon leaving. He himself was totally unaware of there being any wires in his scrotum.”

But as a wire of silver is a foreign body to the tissues, it should therefore be treated as such, removed in general, and left alone when its removal is undesirable in any particular case.

In conclusion I would say, that when left temporarily in the soft parts—as a ligature or suture—I have observed that it creates a surprisingly *small amount* of irritation to them, and am very glad that the same fact has been similarly noticed and spoken of to me by those who have had the fullest opportunities of noticing the effects produced by silver wire ligatures in cases of amputation under their care.



ART. IX.—*Ovarian Dropsy treated by Iodine Injections.* By D. G. THOMAS, M. D., of Utica, N. Y.

PHYSICIANS who have had the care of many cases of ovarian dropsy, have no need of any statements from me asserting its fatal character, and our inability to arrest its progress by medical treatment. It is true that so long as the enlargement does not interfere with the general health and comfort of the patient, and so long as its discomforts can be borne without too much suffering, it is best to leave the disease without interference from art. But in almost all of these cases a time does come when surgical aid can alone offer a chance for relief. Paracentesis is the simplest mode of surgical treatment, but the relief obtained by it is almost invariably only palliative. It is true that occasionally cases have been reported cured by this operation; some change having been produced in the secreting surface of the sac, sufficient to arrest the further progress of the disease. The first operation is not devoid of danger, but this is much lessened in the succeeding ones which may be required. From a report published in the *London Medical Gazette* in 1836, every 5th first operation was fatal. This is a much greater ratio of mortality than is shown to occur by more recent statistics. From this report it would appear that after simply tapping and evacuating the cyst, the average duration of life is eighteen months. From recent statistics the ratio of mortality from first operations is shown to be about one in 12 or 14.

The formidable and dangerous operation of extirpation will seldom be had recourse to, if a safer and more promising operation is within the surgeon's reach. For the last few years, the profession has been looking for safer means in the use of injections, applied on the same principles of action as they have been in cases of hydrocele.

Velpeau, in 1843, was the first to suggest the use of iodine injections in these cases. M. Boinet afterwards carried out the practice systematically in France, and brought it before the profession as a recognized operation. Velpeau furnished the first reliable report of cases thus treated, at a discussion before the French Academy of Medicine, on the surgical management of ovarian dropsy. From this report of 110 cases injected 64 were cured, 36 relieved, and 10 died. The number of deaths is one in every 11 cases injected, about the same ratio of mortality that occurs from tapping. Professor Simpson estimates the number of cures of those injected at about one-third, but in those cases where a permanent cure has not been obtained, the refilling of the sac has been delayed, and the general health greatly improved. The probability is that had Velpeau waited a longer time after his operations before reporting them, that some of the cases he reported cured would have been proved to be only in a measure relieved. Dr. Allison,

of Indiana, in 1846, used an injection of tincture of iodine in an ovarian cyst which he had several times evacuated, and succeeded in obliterating the sac; and this is the only case which I can find that has been reported in the United States.

Professor Simpson first applied the remedy in 1851. He has used it in between forty and fifty cases, and only one death has occurred as the result of the injection. In this case the sac was very large, and injected with tinct. of iodine immediately after the first evacuation. Symptoms of collapse came on, and the case terminated fatally in six or eight hours. From this report of Professor Simpson the operation does not appear to be attended with a great degree of danger. He reports the three following results to be obtained: About one-third are perfectly cured. A part of the remainder are greatly relieved, and life prolonged; while in a few cases but little effect is produced. Multilocular cysts that are small cannot be successfully injected; while an exalted and feverish state of the system, or symptoms of inflammation of the sac, would contra-indicate any operation until such conditions had been corrected. Having during the last year applied the remedy successfully, I propose to report briefly in detail the several steps in each operation, and the effects of each injection.

1861. Dec. 30. I was called to visit Mrs. J——, aged 65, then a resident of Albany, but at the time visiting a daughter in the city of Utica. She had lost much flesh, had a very fetid breath, slightly furred tongue, a tolerably good appetite; and a haggard and anxious expression of countenance. The abdomen was greatly distended. After a careful examination of her case and its history, I concluded it was a case of ovarian dropsy, and suggested to her and her friends the course which was afterwards adopted, as the one most likely to lead to a successful issue. Dr. Coventry saw her with me the next day, and she was put under treatment for the purpose of correcting in some measure her general health, although the absorption of the fluid was not lost sight of, in the remedies selected. The secretion or the kidneys had for a long time been small in quantity, and was not particularly increased by the treatment. As no change except a slight amelioration of the more urgent symptoms had been produced, on the 15th of January, 1862, assisted by Dr. Coventry, the trocar was used, and nine quarts of a ropy fluid were drawn off, which was quite transparent until near the last, when it became of a slight coffee ground color, with flocculi in small quantities floating in the fluid. But slight disturbance followed the operation, and after four days she was put on the internal use of Lugol's solution of iodine. She improved in health and spirits, and February 3d, returned to Albany. The sac was evidently refilling when she left. She came to Utica again, and on the 10th of March the operation was repeated, and six quarts withdrawn. The injection of the sac was delayed for this time, to allow the system to become more accustomed to the changes it

might induce, and thus render the operation less hazardous; we were treading on untried ground to us, and were anxious to give our patient the benefit of great care and prudence, also believing it better to operate before the sac was so much distended. Her general health has remained about the same, but perhaps slightly improved. She returned from Albany the second day of April, and on the fourth, assisted by Dr. Coventry, at half-past twelve, I drew off three quarts of water, ropy, but transparent, and free from any flocculi or coffee ground appearance. Injected four ounces of fluid at blood heat, containing 16 grs. of iodine, and 60 of the iodide of potassa, and after pressing the sides of the sac so as to bring every part of it in contact with the fluid, drew it off, by using the glass syringe to take it up, at the same time the walls of the abdomen were firmly supported with the bandage and the assistants. The contact of the fluid with the inside of the sac produced severe pain; she suddenly became faint, and was covered with a cold perspiration. Gave her hot camphor sling, applied a plaster to the puncture, put her in bed, and supported the abdomen with a firm bandage. Gave her a pill of opii 1 gr., calomel 1 gr., camphor 2 grs. In the course of half an hour the colour began to return to her face, and reaction soon became established. The pain and uneasiness continued, and at 3 P. M. the pill was repeated. 8 P. M. The pain in the bowels is relieved. The pulse is frequent with considerable force. There is uneasiness in the abdomen and pain in moving about in the bed, and tenderness of the whole body. Pill to be repeated every four or six hours, as may be required.

5th. 9 A. M. Has had a comfortable night, and slept several hours. The pulse is less frequent, but has more force. The same tenderness of the bowels and body continues, with a decided increase in the fulness of the abdomen. Simple farinaceous diet. From this day she continued to improve steadily, until the 17th, two weeks after the injection, when she returned to Albany feeling quite well, although there was some evidence of refilling of the sac.

May 1. Came back from Albany yesterday. Has been quite well, but has felt more debilitated since the last operation. There has been some increase of the effusion, but it has not been as rapid as before. The walls of the sac seem much more thin and soft. Deemed it prudent to wait a few days and watch the progress of the case.

12th. At 11.30 drew off three quarts and one pint of thick ropy fluid, of a light green colour. Injected 48 grs. of iodine, 180 grs. of iodide of potash, in 8 ounces of water at blood heat. She had taken 30 drops of McMunn's elixir opii, forty-five minutes before the operation, to diminish the force of the shock. She suffered much less from the injection than before, although its strength had been greatly increased, and the quantity, eight ounces instead of four. It was allowed to remain about five minutes,



and was then drawn off, as in the first operation. At half-past two, three hours after the injection, she had a chill, which lasted twenty minutes. She took two of the camphor pills and some warm drinks. 7 P. M. Face is flushed, skin hot and dry, pulse frequent and hard, with great thirst. She has passed a large quantity of urine, which continued free through the night.

13th. She has had a comfortable night, and continued quite well through the day. Took a pill at 11, 4, and 10.

14th. Slept well until half-past five in the morning, when she was seized with severe pain in the bowels. Saw her about 7 A. M. Severe pain in the abdomen, which was greatly distended, great difficulty in moving, although there was but little tenderness on pressure; whole body was covered with a profuse perspiration; pulse frequent and hard; hands looked as if partially par boiled, of a leaden hue, with the same appearance of collapse printed on the face. She had taken two of the camphor pills before my arrival, ordered free use of camphor julep, gave a pill every hour, and applied strong mustard over the abdomen, and bottles of hot water about the lower extremities. At half-past eleven she seemed much improved. Less tumefaction of the bowels, pulse less frequent, surface more dry, with an increased activity and tone in the capillary vessels; ordered one pill every two hours, and an enema. 3 P. M. Bowels well moved, has had a fine sleep and feels better. At nine in the evening found a gradual improvement, and directed a pill every four hours.

15th. 9 A. M. Has had a comfortable night. Feels better. Pulse more slow and full, distension of abdomen about the same as last evening, tongue still furred. Pill every four hours.

16th. Comfortable night. Bowels opened with congress water. Tongue has improved. Complains of a feeling of exhaustion. There is slight tenderness of abdomen on pressure, the fulness about the same. Pill every three or four hours as may be necessary to allay pain.

17th. Continues to improve. The bowels have a doughy feel, but there is no tenderness on pressure. They have been freely open from the calomel in pills, which were omitted, and small doses of opium given to control the bowels.

23d. Has continued to improve, eats and sleeps well, and has no further need of anodynes.

28th. Gaining constantly, but complains of debility. Gave proto-iodide ferri, six grains each day.

June 10th. She returned to Albany. Since the last operation the secretion of the kidneys has been natural, and although there is some fulness of the bowels, I am inclined to think it the product of the inflammation which followed the injection.

Saw her again in October. She called herself well; could walk with ease three or four miles. Had gained in flesh; the size of the bowels was natural,

and the walls or outline of the collapsed sac could be easily traced through the abdominal parietes.

I have now another case under treatment, where no efforts have been made to exclude the air from entering the sac, and in which in two instances, half of the injected fluid could not be withdrawn; but no injurious effects were produced by its being retained in the system.

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ART. X. — *Gunshot Wound of Chest and Abdomen.* By PHILIP S. WALES, M. D., Surgeon U. S. N.

JACOB MYERS, ordinary seaman, aged 23, admitted March 7th, 1863, with a gunshot wound of the chest and abdomen. He was pale, with an anxious expression of countenance; the least movement caused excruciating pain across the epigastrium and loins. Dark blood issued from the posterior wound, which was between the transverse processes of the last dorsal and first lumbar vertebræ, immediately below the neck of the twelfth rib. Suffers from thirst, and the injection of the smallest amount of fluid causes vomiting and violent retching, the patient flexing strongly both thighs against his abdomen. During these efforts blood, almost black, spirts out at the lower opening, and bright arterial blood at the upper one, which was exactly over the right rib, an inch or two from its junction with the costal cartilage. The pulse was feeble, and the patient very restless, tossing about incessantly. With compressors and adhesive straps the bleeding was stopped. Soon after his admission he passed bloody urine, which coagulated in the chamber. Stimulants were had recourse to in exceeding small quantities at a time, under which treatment the pulse rose a little. Towards noon he became more restless, and complained that the adhesive straps oppressed his breathing; they were removed, but without affording the relief the patient vainly hoped would follow; the stomach was distended and made a perceptible projection in upper region of the abdomen. The eyes became glassy, the pulse vanished from the wrists and ankles, the respiration unequal and frequent, the inspiration was taken with a gasp, and the expiration became twice as long as the former, and seemed to be effected in two expulsive acts; the first sound of the heart was normal and strong, the second could not be heard at all. Later the pulsation of the larger arteries could not be felt; the first sound of the heart ceased, yet the patient gasped, and once raised his head from the pillow; with every gasp the corners of the mouth were depressed, the central portion of the

lower lip rose up and met its fellow. The head was strongly drawn to the left shoulder, and with one forcible expiration the patient expired.

The pectoral and abdominal muscles became first affected with *post-mortem* rigidity, then the muscles of the limbs, from which it gradually spread to the balance of the muscles of the head and trunk.

*Autopsy eighteen hours after death.*—The musket ball comminuted the eighth rib on left side, one or two inches from its attachment to the costal cartilage, passed through the diaphragm on the left side, three inches from its lower margin, making an aperture about  $1\frac{1}{2}$  inches in diameter, wounding the upper part of the spleen, from which a copious hemorrhage had taken place into the pleural sac—the tissue of that organ being broken down into a black mass—then passed through the upper part of the left kidney, from which the blood had escaped to the extent of half a pint, but confined by the cellular capsule of that organ, the tissue of which was also broken down into a friable dark-coloured matter. The ball afterwards struck the upper and left extremity of the stomach, making a similar hole as in the diaphragm, and passed out of this viscus by an equally large opening about midway of its greater curve, and finally emerged below the diaphragm between the transverse processes of the twelfth dorsal and first lumbar, fracturing the neck of the left twelfth rib. About a quart of black blood was found in the left pleural cavity, and a mass of the omentum had been forced through the diaphragmatic opening and contracted adhesion to the external wound. A small quantity of dark coagula was found in the abdomen, and also around the opening in the stomach. The omentum was adherent on the left side of the abdomen, but not at the posterior orifice, being separated from it by coagula. The liver was healthy, and the gall-bladder distended with bile. The pericardium contained about two ounces of serum. The left lung was congested, and its lower margin hepatized, but not wounded; the posterior half of right lung congested also, the balance healthy. Some blood in the bladder, other organs healthy.

The diagnosis made in this case exactly accorded with the *post-mortem* lesions. The dark, or almost black blood, issuing from the wound on the posterior portion of left side, and its position, lead to the supposition of a wound of the spleen. The urine being bloody, pointed to the kidney as participating in the injury. Singular enough, notwithstanding the two large orifices in the stomach, not a drop of blood was vomited, though the patient expelled the contents of the stomach two or three times after his admission into the hospital, and from this fact it was surmised that the stomach might have escaped.

In this case the omentum did not project from the external wound, although adherent to the pleura costalis around it; yet I have witnessed such protrusion in several examples when the wound was much higher up, even at the sixth rib. A man presented this condition of things about three



months ago in this hospital. Surgeon Sharp informed me that he saw a case where the projecting omentum was taken for the lung tissue.

My patient survived the wound ten hours; and yet, in this short time, extensive adhesion had taken place between the serous layers of the peritoneum in the abdomen and this last membrane to the parietes of the chest.

All the cases of wounds of the spleen or kidney that have come under my notice have proved fatal in periods varying from ten hours to two days.

ART. XI.—*On the Use of Antimonii et Potassæ Tartras and Oleum Tiglii in establishing Adhesive Inflammation over Varicose Veins.*

By S. P. TURNER, M. D., one of the Physicians to the Howard Hospital and Infirmary for Incurables.

HAVING upon several different occasions been forced to resort to the obliteration of varicose veins of the lower extremities by means of issues established over their course, inducing a deposition of fibrin within the areolar tissue surrounding them, and not meeting the desired satisfaction from the use of potassa fusa or Vienna paste, because of the great tendency to considerable inflammation of the skin about the issue, and the impossibility of limiting the action to the exact location desired, and the usual very tedious process of cicatrization, I have finally resorted to a substitute, which appears to have answered the desired indication in the instances where it has been employed, without these objectionable results: it is the antimonii et potassæ tartras mixed with oleum tiglii to form a paste of the desired consistence.

From the following cases its mode of application can be seen, with a report of the state in which the patient was left when last under observation.

CASE 1. Robt. Mc——, æt. 38, labourer. Some years since he received a severe blow upon the inner surface of the tibia, which was followed by enlargement of the neighbouring veins, gradually extending along the saphena three or four inches above the knee. Since that time he has suffered much each winter from ulceration at or near the internal malleolus, which usually disappeared after rest with the limb elevated, and the use of some stimulating application, until more recently the size of the veins had increased to such an extent as to render him almost unfit to follow his vocation, from the pain and sense of weight consequent upon the distension of the vessels at fault.

When he presented himself for treatment, there was a few inches above the internal malleolus a large irregular point of ulceration with elevated and indurated margins of a purplish colour from long-continued congestion. The internal saphena vein, beginning at the dorsum of the foot and extending to a point three inches above the internal condyle of the femur, was

largely dilated and tortuous, from elongation in some places appearing as if ready to burst from attenuation of its coverings. The pain was very severe, especially at night, and he seemed somewhat exhausted for want of proper rest.

*June 5.* A cathartic having been given the day previous, with directions that the bowels be kept regular, the patient was placed in bed with the affected limb well elevated and supported upon a pillow.

A strip of ordinary emplastr. cantharidis, about twelve inches in length by one-half in breadth, was subdivided into some fifteen or twenty pieces; then over each projecting point of the vein was placed one of these small blisters, with the order that they be allowed to remain until vesication was established. Twelve hours afterwards it was found that out of the whole number applied, over one-half had produced the desired effect; the elevated cuticle was now removed by a pair of scissors, and to the denuded surface thus exposed was applied the preparation by means of a probe.

*7th.* The parts to which the application had been made were each raised up as an umbilicated pustule, such as is usually seen about the seventh day after vaccination. The patient complains of but little pain, and was directed to use warm water dressings.

*8th.* Passed a quiet night, with no uneasiness; the vesicles had ruptured and permitted the escape of the contained extravasated blood, showing at the bottom of the ulcer a slough which had begun to separate from the adjacent parts; water dressings continued.

*9th.* The sloughs occupying the centre of each ulcer had entirely separated and been removed, exposing a well-defined depression with perpendicular edges; indeed, looking as if they had been cut out by means of a punch. Granulations were already springing up from the bottom and sides of each ulcer, so that in a few days cicatrization was complete.

*Sept. 18.* The site of each ulcer is distinctly marked by a firm cicatrix, whilst the size of the vein beneath has diminished in the same proportion. The original ulceration over the malleolus has completely closed, and has showed no tendency since to return. He was now advised to use a laced stocking, which could be worn with comfort, when previously it had given considerable pain.

Since this time he has been seen once, and has no appearance as if a return of the varicose state was to be apprehended.

**CASE 2.** Jane R., æt. 43. Has not been able to leave the house for some months past from a varicose condition of the internal saphena vein and its ramifications, which she referred to repeated pregnancies and prolonged standing upon the feet. The circumference of the left limb when the erect posture is assumed, measures nearly one-third more than that of the sound one; while over the inner tibial region exists a large irregular ulcer, discharging a most fetid pus. She was placed in bed with the limb well elevated, with directions that the bowels be kept regular.

*Sept. 20.* To a number of places where the vein seems very prominent an ethereal solution of cantharides was touched by means of a camel-hair pencil. Some hours afterwards the raised cuticle was removed, and to the centre of each denuded surface the antimonii et potass. tart. cum olei tigilii was applied.

*21st.* The parts to which the application had been made presented the peculiar umbilicated vesicular appearance of the former case, which, after

discharging their contents, exposed the slough, which was assisted in becoming detached by water dressings.

23d. The sloughs have all become loosened and removed, leaving a well defined ulcer of the same size, and of from one-fourth to five-eighths of an inch in depth, surrounded by a small circle of inflammation. Granulation was now allowed to proceed, and by the 28th cicatrization was complete.

Oct. 20. The primary ulcer over the tibia has yielded to the occasional stimulating action of argenti nitras, while the size of the vein has considerably diminished, and with it that of the limb. She is able to wear an elastic stocking, and feels but little of the pain and uneasiness formerly experienced when the limb was permitted to occupy a dependent position.

CASE 3. Mary R., domestic, æt. 50. Six years ago was much troubled by constipation, which she considers the origin of the present state, which is an enlarged and tortuous state of the veins of the left limb, beginning at the foot and extending to the popliteal space, where the form of a tumour is attained nearly as large as an orange. The patient complains of great pain in the limb with want of power, and experiences considerable difficulty in walking. Several times she has been much annoyed from the appearance of ulceration over the inner surface of the tibia, which gave her considerable trouble before subdued.

Over the varicose vessels several eschars were established by the application of the antimony which produced the requisite amount of inflammatory effusion within the areolar tissue, finally ending in the obliteration of the vessel. The size of the limb has slowly diminished, with a prospect of great alleviation if not a perfect cure.

The patient is usually kept in the recumbent posture, that the distension of the vessel may be prevented as much as possible by the accumulation of blood in it, thus offering an obstacle to the compressing agency of the plastic lymph, which it is our object to attain as much as possible. The vesication by the cantharides expedites the treatment by removing a layer of epidermis, which is usually so thickened by constant irritation that it offers us slight impediment to the action of the antimonii et potassæ tart. made into a thick paste with oleum tigllii and applied by means of a small piece of wood, such as the free end of a common match. This is followed by a vesicle, underneath which is found the eschar.

The proposed plan has not only assisted the repair of the lesion, if the sore is superficial and not very chronic, but in many instances found not only to palliate, but as effective as obliteration of the vein by the use of the twisted suture, or the substitute of potassa fusa or Vienna paste, whilst it possesses the advantage of being available in almost every instance of varicose enlargement of the superficial veins of the lower extremities.



ART. XII.—*Luxation of the Head of the Fibula.* By JOS. G. RICHARDSON, M. D., Resident Physician to the Pennsylvania Hospital.

THE following example of this accident is interesting from its rarity, there being but three cases of it on record; one by Sir A. Cooper, another by Malgaigne, and a third by Sanson:—

John Dixon, a schoolboy, æt. 9, was admitted into the Pennsylvania Hospital, on the evening of December 26, with an injury to the knee. In the absence of my colleagues, being called to the case, I found the child extended upon his back, with the left leg in a semi-flexed posture, and the foot slightly everted, apparently suffering considerable pain, and unable to completely flex or extend the limb. When questioned in regard to the accident, he referred the uneasiness to the outside of his knee, and stated that it was the result of a fall of about five feet from the top of a fence, and that he had struck that part of his leg against something in his descent. On examination a protuberance was observed on the outer back part of the leg about three-fourths of an inch behind the head of the fibula. The tendon of the biceps flexor, rendered prominent by spasmodic contractions of that muscle occurring at short intervals, was distinctly felt attached to this prominence. After a careful scrutiny of the joint and surrounding portions, in which no other lesion was discoverable, the diagnosis of luxation of the head of the fibula backwards was formed, and an attempt made to reduce it by insinuating the tips of the fingers beneath the fibula, so as to make some traction outwardly, at the same time the head of the bone was drawn forwards to the articulating surface on the tibia. In this way the displacement was overcome with but little difficulty, and the boy enabled to resume the natural movements of the limb. To guard against a recurrence of the luxation from muscular spasm or otherwise, a compress was placed behind the fibula, a firm bandage applied to the leg, and the patient directed to remain in bed with the limb partly flexed until further orders. No tendency to redislocation being observed, however, after a few days a cautious resumption of the usual functions of the limb was permitted.

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ART. XIII.—*Formula for a Solution of Bromine.* Proposed by J. LAWRENCE SMITH, M. D., Professor of Chemistry in the Medical Department of the University of Louisville.

THE frequent demand for bromine from the Louisville Chemical Works, which are under my direction, induced me to inquire for what purpose it was

used, and learned that it was being employed as a therapeutic agent, especially in the form of vapour mixed with air as a purifier of the atmosphere of hospitals, where erysipelas, gangrene, smallpox, &c., existed, and also internally in certain affections of the throat. Knowing full well the inconvenience of the use of the substance in the form called for, I at once undertook to compound a solution which would meet the ends required, and be more convenient for any therapeutical use to which uncombined bromine might be applied. From the slight solubility of bromine, any attempts to dissolve it in water would give too dilute and bulky a solution, the natural suggestion, therefore, was to use but little water and facilitate its solubility by adding bromide of potassium; at first the following proportions were used: 1 troy ounce of bromine, 120 grains bromide of potassium, and 1 fluidounce of distilled water; the formula left a small quantity of bromine undissolved, and the solution was too concentrated. After varying the proportions in different ways I have settled on the following as the most convenient formula:—

R.—Bromine . . . . . 1 troy ounce.

Bromide of potassium 160 grains.

Distilled water . . . q. s. to make four fluidounces of the whole mixture.

Dissolve the bromide of potassium in about two fluidounces of water in an eight ounce bottle, then add the bromine, agitate gently until the solution is complete, then add water enough to bring the whole to four fluidounces.

This mixture forms a very dark red solution, evolving strong fumes of bromine, and readily soluble in any additional quantity of water.

I have given this formula as one that will, doubtless, recommend itself to those of the medical profession engaged in using bromine, and is already being used by the medical profession of this place.

## REVIEWS.

ART. XIV.—*The Renewal of Life; Clinical Lectures Illustrative of the Restorative System of Medicine, given at the St. Mary's Hospital.* By THOMAS K. CHAMBERS, M. D., Fellow of the College of Physicians; Physician to St. Mary's Hospital; Lecturer on the Practice of Medicine, and Clinical Lecturer at St. Mary's Medical School. London: John Churchill, New Burlington Street, 1862. 8vo. pp. 430.

OF the character of this book the title hardly affords an inkling, but its pertinency is apparent after the author's doctrine of the general nature of disease is apprehended. He begins by enumerating five principles which, at the present time, influence more or less the therapeutical conduct of those who undertake the management of cases of disease. One of them is *allopathy*, a name which physicians properly repudiate as designative of legitimate medicine, but which, it must be admitted, expresses a line of practice pursued to some extent. The second is *homœopathy*, which the author disposes of satisfactorily in a few words. The third is *evacuation*, the principle involved in the measures designed to eliminate a *materies morbi*. The fourth is *counter-irritation*, a principle founded on the idea of substituting for a disease which threatens to be dangerous or persisting, an artificial disease which is temporary and controllable. The fifth is *stimulation*, which the author regards as a step forward in the right direction, but, as a therapeutical principle, resting on a partial trial only. He regards the root of all these principles as unsound; all of them being based on the assumption that disease is an entity, a motive cause, a *positive* existence. As opposed to this notion of disease, the author sets forth his own view in the concluding paragraph of the first lecture:—

"DISEASE is in all cases not a *positive existence*, but a *negation*; not a new *excess* of action, but a *DEFICIENCY*; not a *manifestation of life*, but *PARTIAL DEATH*: and, therefore, the *BUSINESS OF THE PHYSICIAN* is, directly or indirectly, not to *take away material*, but to *ADD*; not to *diminish function*, but to *GIVE IT PLAY*; not to *weaken life*, but to *RENEW LIFE*. These are the principles of *RESTORATIVE MEDICINE*."<sup>1</sup>

In the second lecture the author enters into a further exposition of his philosophy of disease. Having instituted a comparison between the decay of dead and of living bodies, he considers life as the principle which presides over the changes of nutrition. "*LIFE IS RENEWAL*," "the *most active* renewal of the body possible, the highest possible development of life in every part, is *HEALTH*." "The *complete* cessation of renewal is *DEATH*." "The *partial* cessation, or arrest, is *DISEASE*."

In illustration of this definition of disease, the degeneration of the voluntary muscular fibre after long disuse, is compared with the change which occurs during maceration after death, according to Quain's observations. So in other cases of degeneration there is a "*diminished life*," or a "*partial*

<sup>1</sup> The *italics and capitals* here and subsequently, are the author's.



death." Cancer, for example, denotes lessened vitality, notwithstanding the amount of morbid growth, because it never puts on the *form* of the part it is planted in, nor performs its duties." "Its very tendency to die and to ulcerate is one of the chief dangers in which it puts your patient." He cites the instance of the local processes in a common cold, because in such an instance the first impression is that vital actions are increased, not diminished. But adopting the hypothesis of Virchow, that the "exudation or mucous globules," or the "pus globules," found on an inflamed mucous surface, are imperfectly developed epithelium cells, this shows deficient vitality. "The business of mucous membranes is to be covered with epithelium, not to throw off mucus; and when they are doing the latter, they are so far forth in a state of diminished life." And the same holds true of all inflammations; all are characterized by partial death of the part affected. In like manner blood changes denote either "a distinctive relapse into a less organic life, or an arrest of development." "The poison of fever, for example, destroys and renders useless as nutriment some constituents of the blood." Anæmia is an instance of an arrest of development of the red corpuscles.

Carrying the doctrine into the materia medica, therapeutical measures, or, as the author says, the "tools with which the restoratist physician has to work," may be divided into CONSTRUCTIVES, ARRESTERS, and DESTRUCTIVES. The restoratist physician deals especially with constructives:—

"Or, by the judicious use of destructives and arresters of metamorphosis, we in some cases make room for, and in others allow time for the normal growth of the tissues, and thus are acting up to our principles in making our prime object the renewal of life."

This sketch of the first two lectures will convey a general idea, if not a full appreciation of the sense which the author attaches to the terms, "renewal of life," and "restorative medicine." And this is all that we shall undertake to do. We will not discuss the merits of the doctrine which the author considers to be the foundation of pathology and therapeutics. It is striking, and we do not hesitate to say that, in our opinion, it contains much of truth. Whether it be true in the length and breadth with which the author presents it for our acceptance, is another question. We are by no means prepared to deny that in some forms of disease there is an exaltation of the vital functions of the affected parts. For example, it is difficult to show that muscular hypertrophy does not involve augmented activity of the nutritive processes and increased functional power, and hence, that hypertrophy is to be regarded as a partial death, but, considered in its practical bearings, the doctrine will be likely, in the majority of cases, to lead to safe and judicious practice. The doctrine seems to us to have grown out of a common sense view of clinical medicine; we mean by this remark, that the author appears to have set about to devise a theory consistent with the practical notions which actuate, at the present moment, the most enlightened and judicious physicians. It is interesting to remark the different points of view by which similar practical conclusions are reached. For us the renewal of life is conservative medicine, and the restoratist is the conservative physician. Commending the theoretical part of the work to the reflections of the reader, we shall devote the remainder of this review to some of the practical points presented in the remaining twenty-seven lectures.

*Continued Low Fever* is the subject of two lectures. The author is inclined to think that the poison of continued fever enters the system

through the digestive canal; and he believes that, at an early stage, the fever may be arrested by an emetic. This belief is for us especially noteworthy, because it accords with the opinion of one who, as an able, candid, and conscientious clinical observer, is second to none other; we refer to James Jackson, of Boston. Dr. Jackson has long taught that continued fever may be sometimes broken up by a prompt emetic. We regret that we have nothing to say on this point from our own experience.

Regarding the blood as in a state of super-alkalinity from the presence of an excess of ammonia, according to the remarks of Dr. Richardson, the introduction of an acid becomes an important restorative measure. Dr. Chambers gives the hydrochloric acid in doses of twenty minims every two hours, with syrup. Of the efficacy of this measure he speaks in very strong terms. He declares that during a period of eight years he has not lost a case of low fever in which this remedy has been taken for thirty-six hours.

The restorative method embraces nutriment containing a large amount of nitrogenized material, and alcohol when there is prostration with delirium of a low character. The latter is not to be given indiscriminately. We are glad to see that the author takes ground against its excessive use; but it seems to us that he hardly accords to it sufficient importance in the treatment. A number of cases are reported as illustrative of the author's practice in low continued fever.

Anæmia and bloodletting are discussed in one lecture. With respect to the former there is nothing to be especially noted; but from the author's views of bloodletting we must express dissent. We quote his language:—

"The question (viz., why we bleed) seems to me rather one of hydrostatics than of vital statics. The primary and most important effect is mechanical. The bloodvessels of some parts of the body have lost their tone and become dilated; and the more pressure of fluid there is inside them, the more and more will their vital elasticity be impeded, and the more dilated they must become. Taking blood in this case is like emptying the urinary bladder when paralyzed by its retained contents; and the more locally the remedy can be applied, the closer it resembles that approved surgical operation. Relieved of the burthen which oppresses their life, the vessels are enabled to resume their function of regulating the stream of the circulation. So that from this point of view, and so far, the treatment is directly restorative and reconstructive. It is a remedy for local congestion."

Dr. Chambers evidently bleeds more than most practitioners of the present day, and it is curious to see how he essays to reconcile his practice with his doctrine of restoration and life renewal. He shuts out of view the heart's action, the force of attraction in the tissues, and the fact that the blood contains the principles of repair. We are among those who think that the evils of bloodletting are apt to be exaggerated, and that its repudiation in all cases is as much an error of extremes as its indiscriminate use. But we must say that the mechanical view set forth in the foregoing extract seems to us untenable; and that its adoption, as the basis of the employment of bloodletting, would be productive of not a little destructive practice.

*Rheumatic Fever* is the subject of a lecture. Dr. Chambers attaches great importance to quietude and protection of the surface against cold. We quote his practice with reference to these objects:—

"The patients are bedded in a peculiar fashion. All linen is strictly forbidden to touch the skin. A slight calico shirt or shift may be allowed; but if



they possess underclothing only of the prohibited sort, they are better naked. Sheets are removed, and the body carefully wrapped in blankets, which are so arranged as to shut off all accidental draughts from the head. The newest and fluffiest blankets that can be got are used. The bed-clothes being put so are kept so, and students are warned that when they listen to the sounds of the heart they must not throw open the blankets, but insert their stethoscope (first warmed) between the folds."

He adds :—

"Since I have instructed my nurses to adopt it (*i. e.* this plan), in every instance, during the last eight or nine years, I have had pericarditis come on only in one patient previously sound, and that was in a girl who was taking mercury and opium, and, I suspect, had exposed her chest a good deal to the air."

We cannot avoid wishing he had given the number of cases under his treatment during the period stated, for pericarditis is by no means a frequent complication of rheumatism. In addition to the practice just described he prescribes the alkaline treatment, and gives opium as a palliative. The iodide of potassium he thinks useful in certain cases. If pericarditis become developed, local depletion by leeches is strongly enforced. The infrequency of this complication, however, in the cases under his observation must have afforded him but a limited opportunity to test the efficiency of this treatment. We must confess skepticism as to the power of blood-letting to control this, more than other serous inflammations. He advises the constant application of a poultice to the præcordia during the continuance of the pericarditis. Mercury, with a view to prevent the occurrence of pericarditis, or as a remedy, he does not employ, having observed a fatal case in which this complication occurred while the patient was under mercurial influence. Although a single case affords but little evidence either for or against a remedy, we are not disposed to take any exception to the repugnance with which he regards the mercurial treatment of pericarditis.

The next subject considered is *Pleurisy*. Leeches and poultices constitute the author's treatment. In his advocacy of the former he reproduces, as he does repeatedly in other connections, his explanation of the local detraction of blood as a "renewer of life." He says:—

"Doubtless the taking away the vital fluid is taking away part of the body, and so is directly a destructive agent. But, then, blood thus lost from an inflamed part is not all loss; it is black 'melanose,' partially dead and unfitted for the purposes of life, and only a portion of it can be called living. Then again, granting that loss of blood is a direct loss to a living body, still the indirect gain is a full compensation to cases when it is rightly applied. The blood-vessels resume their elastic force, the blood-stream is restored, and loss of substance is a regaining of function. So that a destructive becomes in the end a constructive remedy."

But does it follow that, because leeches are applied to the chest, the blood removed comes from the inflamed place? Is it only the melanoid or partially dead blood which is removed? Does the blood taken from the integument of the chest in pleurisy show evidences, derived from microscopical or chemical examination, of partial death, or any essential change?

The explanation given of the *modus operandi* of poultices is, to say the least, amusing:—

"In the action of poultices there is no even seeming paradox to stumble at. Continuous steady warmth is the most direct agent we possess of vital development. It not merely encourages vital growth, but makes that growth take a



higher form of life. Mr. Higginbottom found that different detachments of tadpoles, kept in the dark and treated with different degrees of temperature, threw off their tails and branchiæ, and developed lungs and became frogs with a quickness exactly proportioned to the warmth they were subjected to. Warmth, especially when kept steady, and even by moisture joined with it, has the same effect on the failing life of tissues; it raises and restores it to its normal force of development. It renews the injured membrane which had been lowered to that condition we call congestion and inflammation into the higher life of warm-blooded circulation. As it developed the tadpole into the frog, so it develops the half-killed diseased part into full life."

Dr. Higginbottom, we fancy, hardly dreamed of this practical application of the results of his experiments on tadpoles!

Here, as in other instances, Dr. Chambers affirms with much positiveness the efficacy of his mode of practice. "Such means," he says (*i. e.* leeches and poultices), "will not fail to cut short an attack of pure pleurisy." We must, however, dissent *in toto* from his implied opinion that acute pleurisy tends to the destruction of life. He gives a case in which it proved rapidly fatal; but in that case there existed pyæmia. Fatal cases of pure acute pleurisy are exceptional. Dissenting from his opinion of the danger of pleurisy, we must also dissent from him when he says, "Do not hesitate and trust patients to Nature in any disease; but least of all in acute pleurisy." On the contrary, we could cite abundant facts to show that cases of acute pleurisy may generally be left to Nature with entire safety.

*Idiopathic hydrothorax* Dr. Chambers considers as meaning "a collection of serum in the pleural sac, injurious to health from its quantity, and arising from an abnormal state of the pleura itself." By this definition he excludes dropsy of the pleural sac, and applies the term hydrothorax to an effusion which in most, if not all cases, proceeds from pleuritis. We are unable to see the propriety of this use of the term. Subacute or chronic pleurisy with effusion, as it seems to us, covers the ground sufficiently. In the treatment of these cases he employs blisters, poultices, and diuretics. Recollecting his antipathy to mercury in pericarditis, we are surprised at his very strong recommendation of this remedy in pleuritic effusion. We quote his remarks:—

"Mercury distances all the contents of our Pharmacopœia in the power of hastening destructive metamorphosis. Under its influence all the excretions are increased at the expense of the tissues. Now it is quite true that, by such a process, nothing is directly gained in cases like that before us; there is no poison to evacuate, and the debility which follows is so much ground lost. Harm, therefore, certainly is done by it; but with the harm there is joined a good which I think is worth the loss. No drug so constantly and steadily promotes absorption as mercury, and in no case can you trace its effects so easily as in hydrothorax."

We cannot but think that the loss from mercurialization in these cases is more appreciable than the gain, and we believe that Dr. Chambers will think so if he will observe a series of cases treated without having recourse to mercury. He reports a case in which paracentesis was employed, and considers this to be an easy and safe operation.

*Acute Laryngitis* is the next subject considered. The therapeutical indications are thus summed up:—

"Warm the surface of the body; saturate with hot *steam* the air inspired; put on *leeches* and hot *fomentation* to the throat. Food must be sedulously administered, if not by mouth by rectum. If benefit do not quickly follow, perform tracheotomy, or get it performed."

We would commend especially the last injunction ; many lost lives might have been saved by a prompt resort to this operation.

The author objects to the use of antimony and mercury in this disease, and the grounds of his objection are precisely those which we have been led to consider as warranting their use. He thinks that these remedies depress rapidly the general vitality, and his argument against their applicability in acute laryngitis is contained in the following quotation :—

“This depression is the more decided from the limited extent of the inflamed spot, and the limited inflammatory reaction on the system ; for the poisonous actions of antimony and mercury are the stronger in inverse proportion to the amount of tissue inflamed. Give them to a healthy man—to a man with a cold in the head or an inflamed corn—and they pull him down most wonderfully ; but give them to a patient with double pneumonia or peritonitis, and he hardly feels their effect. In laryngitis, therefore, *more* than in most inflammations, these drugs are likely to have a deleterious action, and *less* than in most inflammations a beneficial action.”

In direct contrast with this reasoning we should argue in behalf of the appropriateness of these remedies in acute laryngitis, as follows : Since the inflammation in acute laryngitis involves no danger *per se*, but only because, from its situation, it occasions obstruction to respiration, it is not so much an object to spare the powers of life as in other affections like pneumonia or peritonitis, which destroy life by asthenia. We cannot appreciate the effects of the remedies in question in the latter diseases so well as when a patient has only a common cold or an inflamed corn, because their effects are intermixed with the phenomena of the disease, but in proportion as the disease tends to impair the general vitality, the latter has less force of resistance to these remedies. We would, therefore, reverse the closing statement in the question and say, in laryngitis *less* than in most inflammations, these drugs are likely to have a deleterious action, and *more* than in most inflammations, a beneficial action. We submit the *alterem partem* to the verdict of the reader.

*Pneumonia* is the subject of the next lecture. Dr. Chambers is an advocate for bleeding in this disease. We give the theory of its usefulness.

“The beneficial action of bloodletting in pneumonia is mechanical. The pathology of the demand for its use is as follows : by the temporary death of a portion of the lungs the blood cannot be quickly enough passed onward through their tissue ; it can run freely as far as the right side of the heart, but there it is stopped ; the throng pressing onward from behind makes matters worse, and thus the balance between the venous and arterial heart is destroyed. \* \* \* Take away some of the blood from the veins and the balance is restored ; the pulse becomes ‘freer,’ as the technical phrase is ; that is to say, the heart being relieved of the undue crowd in the right side, is not arrested in its contraction, but is able to close upon its contents and supply them steadily to the arteries.”

This explanation is not peculiar to Dr. C. We believe it to be rational, and a sufficient ground for bleeding *when other circumstances do not contra-indicate it*. We will add a consideration, which we suspect to be of importance, with reference to bleeding in pneumonia. The accumulation of blood in the right cavities of the heart favours the occurrence of heart-clot, which we are well convinced is an accident occurring in this disease oftener than is generally supposed. A sudden and unexpectedly fatal termination is not unfrequently attributable to this accident.

Aside from the question of bloodletting, the author advises nutriment, wine, and a poultice to the chest. He abstains from purgatives, blisters, antimony, and mercury, to which we cordially say, amen.

The lecture on *pulmonary consumption* is, in our estimation, one of the most valuable in the book. The following sentence, which the author gives in italics, indicates the line of conduct which the practitioner should pursue in the management of this disease. "*I cannot too strongly impress upon you that not so much the tubercle as the tendency to form tubercle, nor the morbid matter, but the diathesis, is that which should occupy your thoughts.*" In pursuing this line of conduct we agree with the author most heartily in avoiding all so-called "cough medicines," such as antimony, ipecacuanha, and squill; also, mercury and purgatives. We agree with him when he says that the object is "to get the greatest possible amount of albuminous food fully digested and applied to the renewal of the body." Cod-liver oil he deems often useful as a form of nutriment. We believe that he underestimates the value of alcohol as a remedy in this disease.

The lecture on *Disease of the Heart* is excellent. He cites a series of cases in which organic murmurs had existed for many years without inconvenience from valvular lesions. We have endeavoured to impress the error and evils of attaching undue significance to heart-murmurs, and to enforce the importance, in cases of chronic valvular lesions, of keeping the heart and the system at large invigorated as much as possible. We quote with satisfaction the following enumeration of the main points in the management of diseased hearts:—

"1. The importance of valvular lesions consists in their liability to cause enlargement of the organ.

"2. In auscultation we should strive more to find out the state of the heart-walls than of the valves.<sup>1</sup>

"3. The danger of enlargement is greatest where the muscular fibre is weakest.

"4. The muscular fibre is weakest where the blood is most anæmic.

"5. The principal object of treatment is to avoid anæmia."

Passing by a lecture on thoracic aneurism, the two next lectures are devoted to *Albuminuria* and *Diabetes*. The practical views with respect to the former of these two diseases accord with those now generally held by intelligent practitioners, nor do we find anything especially noteworthy in the lecture on the latter disease. We may dismiss, in the same manner, the subjects treated of in the two succeeding lectures, viz., *Hysteria* and *Sciatica*.

The last nine lectures are devoted to the *digestive organs*. *The Importance of these Organs in Therapeutics* is the subject of a lecture. *Indigestion* occupies three lectures, and *Eructation and Vomiting* an additional lecture. The *Dietetics of Deranged Digestion* are considered in another lecture. *Pepsine* and *Alcohol* each occupy a lecture; and finally, *Diarrhoea* and *Constipation* have each a distinct lecture. Our limits forbid a review of these nine lectures, and the more because they are even richer than the preceding lectures in practical points of interest and importance. Dr. Chambers, as we need not inform our readers, has made digestion and its derangements a special study, and the last nine lectures of this book may be regarded as an appendix to his former valuable treatise on the same subject.

As a writer, Dr. Chambers is remarkable for presenting his views with great boldness, precision, and conciseness. He gives many valuable facts,

<sup>1</sup> The physical signs enable us to find out both.—REVIEWER.



and much that is suggestive of important trains of reflection within a small compass. His writings excite and sustain the reader's attention. In his little work on the *Renewal of Life* he treats of the various subjects in a fragmentary style, confining himself to the salient points of inquiry; but this feature of the work, arising from the fact of its being made up of clinical lectures, will not render it less attractive to the medical reader. The work is, in many respects, open to criticism. The soundness of the author's reasoning may not unfrequently be called in question, and there seem to us to be palpable inconsistencies between the doctrine of "restorative medicine" and the author's practice. But it is a work well suited to awaken thought and inquiry in a right direction, and we are not surprised to hear that already it has passed to a second English edition. So soon as our domestic troubles permit the medical publishers of this country to resume their wonted activity, we shall expect to see the work in an American dress.

A. F.

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ART. XV.—*Medico-Chirurgical Transactions*. Published by the Royal Medical and Chirurgical Society of London. Vol. XLV. (2d Series, Vol. the twenty-seventh.) London, 1862. 8vo. pp. 497.

THIS volume contains twenty-four original communications. Abstracts of fourteen of these having been already given in the quarterly summaries in numbers of this Journal for last year, we shall now notice only the other papers in the volume.

I. *Observations in the discovery of the original obstetric instruments of the Chamberlens*. By ROBERT LEE, M. D.—This paper, as detailing several circumstances connected with the history of the Chamberlens, and with the introduction of the midwifery forceps in the practice of obstetrics, will be read with interest, particularly by those who study and practice that department of medical science. Dr. Lee does not appear to question at all that the Chamberlens were the first to use forceps.

II. *On certain grave evils attending Tenotomy, and on a new method of curing Deformities of the Foot*. By RICHARD BARWELL, F. R. C. S. E.—An abstract of this paper is published in the number of this Journal for January, 1862. It is one of importance, as calling attention forcibly to the too much neglected fact that, in certain cases of deformity of the foot, division of the tendons only aggravates the patient's condition, and also as indicating a most promising mode of treatment; instead of destroying by an incision the action of the muscles by which the foot is turned, Mr. Barwell, by an ingenious apparatus, assists the action of those that are not sufficiently powerful to keep it straight. In this apparatus, which is not very clearly described in the volume before us, and still less clearly in the abstract referred to, an inextensible piece of stout adhesive plaster is fastened to the foot all over the course of the *tendon* of the feeble muscle, and an elastic cord, following the course of the *muscle*, is fastened to the end of the plaster below and to a hook above. This hook, in the apparatus described by Mr. Barwell, is held in position by being attached to the upper extremity of a piece of tinned iron bound to the leg by adhesive strips. If this hook, to which the upper extremity of the elastic band is attached,

were held in place by some contrivance not interfering with the free play of the muscles of the leg, the apparatus, it seems to us, would be much improved. Mr. Barwell's paper is accompanied by a plate containing five figures, illustrating the application of the apparatus in various malpositions of the foot.

III. *Congenital Malformation of the Eyes in three children of one family.* By THOMAS NUNNELEY, F. R. C. S. E.—The malformation in the three cases mentioned in this paper consisted, in one, in total absence of the iris in both eyes, and in the others in the irides being dull, thin, and tremulous. Though the eyes in all the cases were irritable and painfully affected by very strong light, yet vision was pretty good. In the work of Desmarres on diseases of the eye, the frequency with which irideremia is seen in several members of a family is spoken of, and a most curious example is given, to which we would refer those particularly interested in this affection, and also those interested in the interesting study of the inheritance of deformities. (Desmarres, *Mal. des Yeux*. Tome deuxième, page 457. Paris, 1855.)

IV. *Observations on the division of the Gustatory Nerve, and on ligation of the Lingual Artery, in the treatment of Cancer of the Tongue.* By CHARLES H. MOORE, F. R. C. S. E.—An abstract of this paper is published in the number of this Journal for January, 1862. The operations recommended by Mr. Moore, though not curative, yet have afforded such decided relief, that surgeons should be encouraged to practise them, as making life less insupportable in one of the most distressing affections to which the human body is liable.

A plate is attached to this communication, representing a vertical median section of the bones of the face, for the purpose of marking the place where the gustatory nerve is recommended to be divided.

V. *A case of Osteo-malacia.* By ROBERT BARNES, M. D. Communicated by Mr. T. B. Curling, F. R. S.—Dr. Barnes has submitted the very interesting case of osteo-malacia, here recorded, to the Royal Medical and Chirurgical Society for the reason that in the Transactions of this Society is to be found a great part of all the original information that has been contributed by English authors concerning that rare and formidable disease.<sup>1</sup>

The patient was a woman, forty years of age, married, but never pregnant, who had enjoyed good health, and who belonged to a healthy family. The clavicles, the scapulæ, and the bones of the head and the extremities were not affected by the disease, and those bones of the trunk suffered most the bulky part of which is largely formed of cancellous tissue. Under the use of cod-liver oil, which has been recommended by Breslaw and others as beneficial in cases of softening of the bones, the progress of the disease was arrested, and the patient restored to health.

The most interesting portion of the paper is the account of the analysis of the urine made at various times. The characters of this secretion may be briefly summed up as follows: During the active stage of the disease it contained a large excess of urea, of alkaline and earthy phosphates, and of extractive. It also almost constantly contained small quantities of sugar. It is worthy of note that in a case related by Beylard, who has written by far the most complete account of osteo-malacia that has yet been published, a number of calculi were removed from the kidneys after death. These calculi were found, on chemical analysis, "to be, so to speak,

<sup>1</sup> See vols. vii., viii., xv., xvii., and xx. for papers on the subject.



exempt from uric acid, and from ammoniaco-magnesian phosphates, and to be formed entirely of phosphate of lime and of organic matter.”<sup>1</sup>

VI. *On some affections of the Cæcal portions of the Intestines.* With illustrative cases. By FREDERICK GEORGE REED, M. D.—A full abstract of this important paper is published in the number of this Journal for April, 1862. In an appendix attached to the paper in the volume before us, the reasons are given why Sir Benjamin Brodie recommends patients with cæcal fistula to remain recumbent on the face night and day for several months, and also for the administration of one drachm doses of powdered cubebs. In all those cases of rupture of the cæcum followed by abscess, which Sir Benjamin Brodie has had the opportunity of examining after death, on dissection, the opening has been uniformly at the posterior part of the intestine; consequently, the object of the patient maintaining the prone position on the face becomes obvious. The use of powdered cubebs pepper was suggested from it having been found to be often very beneficial in cases of internal piles, and especially useful when the patient suffers from hemorrhage in consequence. The powdered cubebs pepper seems to act by mixing with the feces and becoming a topical application to the mucous membrane of the bowel. In the case related by Dr. Reed the grains of pepper were daily recognizable in the fecal matter passing through the fistulous opening. The medicine appeared to be grateful to the stomach, and to aid the action of the bowels.

VII. and VIII. *On the Poisonous Effects of Coal-Gas upon the Animal System;* and *Additional Experiments on the Poisonous Effects of Coal-Gas upon the Animal System.* By C. J. B. ADDIS, M. D.—Abstracts of these papers upon the effects of undiluted coal-gas, and the effects of the same gas diluted with atmospheric air in different proportions, together with the remarks made by Mr. Marcet and others at the time of their reading before the Society, are published in the numbers of this Journal for April and for July, 1862.

IX. *On the Temperature, Urea, Chloride of Sodium, and Urinary Water in Scarlet Fever; and on a Cycle in Disease and Health.* By SIDNEY RINGER, M. B. Communicated by Dr. Garrod, F. R. S.—An abstract of the experiments recorded in this very elaborate paper, which is intended to be a sequel of a former paper on “Ague,” published by the author in Volume XLII. of the *Transactions*, of which a notice was given in this Journal in the number for April, 1860, is published in the number of this Journal for April, 1862.

This communication is accompanied by nine diagrams, or charts, by which the study of the changes in temperature from day to day is greatly facilitated.

In connection with this subject, it may be thought worthy of mention that we have recently examined, on two occasions, the urine passed by a patient during the long-continued cold stages of pernicious intermittent fever. In both instances it was found to have a specific gravity of 1030, and the excess was determined to be owing to the large quantity of urate of soda it contained.

X. *On Pulse-Breath.* By C. RADCLIFFE HALL, M. D. Communicated by W. Jenner, M. D.—By the term “pulse-breath,” Dr. Hall wishes to

<sup>1</sup> Beylard, “Du rachitis, de la fragilité des os, de l’osteomalacie.” Paris, 1852. It is quite remarkable that Dr. Barnes manifests no acquaintance with this really splendid monograph.



signify an audible pulsation communicated to the breath, as it issues from the mouth, by each beat of the heart. It must not be mistaken for "pulse-respiration," which is often used to designate the ratio that exists between the frequency of the pulse and the number of the respirations in a given time. It is simply an audible pulsation of the breath as it issues from the patient while he holds his mouth open and breathes as gently and with as little of the ordinary noises of respiration as possible. The sound is that of a gentle gushing of the breath synchronous with each pulsation of the heart, and such as any one may imitate voluntarily, so far as the character of the sound is concerned.

Dr. Hall has noticed the phenomenon he terms "pulse-breath" in three cases. In two there was a large excavation in the lungs, and as the cavity was more empty so the sound was more marked. After an attack of vomiting, by which the cavity was well cleared of its liquid contents, Dr. Hall was able to count the pulse of the patient by listening to his breath at a distance of fifteen feet. The mechanism of the production of pulse-breath in these cases seems to be very evident. A large cavity, old enough to possess walls of sufficient density, which is not immediately separated from the heart by permeable or crepitating lung, or any other intermediate soft texture which could act the part of a damper, and which is tolerably dry for the moment by being emptied of its customary contents, vibrates in accordance with each beat of the heart, and at each vibration throws the air in the cavity, trachea, larynx, and mouth, into a sonorous pulsation. When the cavity is more or less filled with liquid, it no longer vibrates; and, as this is the habitual state of a cavity which has not collapsed, the phenomenon of pulse-breath is not ordinarily present even in such cases as can manifest it under fitting conditions.

The next example of "pulse-breath" related by Dr. Hall is less easy of explanation. The case was one of cardiac disease with enlarged liver, pulmonary congestion, relieving itself occasionally by hæmoptysis, leaky kidneys, and general anasarca of the lower extremities. In this patient a soft, gentle "pulse-breath" was *never* absent when the mouth was held open. It was audible when the patient was asleep, and when awake it was rendered considerably louder when the action of the heart was unusually excited. To explain the production of "pulse-breath" in this case it may be supposed that the impulse of the distended auricles and the pulsation in the pulmonary vessels were communicated through the condensed lung to the air in the bronchial tubes at the same instant of time that the pulse was communicated through the bloodvessels.

The phenomenon to which attention is called by this paper, though we are not aware that it possesses any special diagnostic or prognostic importance, inasmuch as the nature of the case will probably, in every instance, be sufficiently evident without it, is at least one of very considerable interest as a medical problem alone.

XI. *The Brassfounders' Ague.* By EDWARD HEADLAM GREENHOW, M. D.—An abstract of this communication, in which attention is again called to the irregular paroxysms, resembling the paroxysms of ague, affecting those exposed to inhaling the fumes of deflagrating zinc, is published in the number of this Journal for July, 1862.

XII. *On the Connection between a Local Affection of the Lymphatic System and Chylous Urine; with Remarks on the Pathology of the Disease.* By H. V. CARTER, M. D., Professor of Anatomy and Physiology, Bombay Medical College. Communicated by Prescott G. Hewett, F. R.

C. S.—In this communication Dr. Carter gives the history of three cases of disease of the lymphatic system, and then proposes a new view of the nature of the obscure disease characterized by a chylous condition of the urine.

The first case is a well-marked instance of local derangement of the lymphatic system, accompanied by the accumulation of chyle, and its occasional discharge from the cutaneous surface. The urine was unaffected.

In the second case, a local affection of the lymphatic vessels and glands existed, and there was a frequent external discharge of chyle. The urine, moreover, in this case was frequently chylous, in the strict sense of the word.

In the other case, without any external *local* affection of the lymphatics, the patient presented a striking instance of chylous urine, which, as in the other, was intermitting in character.

The view advanced by Dr. Carter is, that chylous urine is connected with an *abnormal distribution of the chyle, which becomes admixed with the urine in a direct manner*, and not through abnormal excretion of the chyle, as Prout supposed, or through its absorption, as is maintained by Dr. Beale.

In the cases where the chyle was poured only on the surface of the body—on the thigh and the scrotum—lymphatic vessels and the glands could be seen to be greatly enlarged and dilated, and this state must have extended upwards, as high indeed as the thoracic duct, for the fluid discharged was not mere lymph, but a rich chylous liquid. Of course if the chyle, in place of being poured out externally, had been turned upon the urinary mucous tract, where local hypertrophy and dilatation of the lymphatic system might readily exist, for the lymphatics of the bladder, ureters, &c., are very numerous and superficial, all the phenomena of chylous urine would have been witnessed. Although direct anatomical proof of the accuracy of these views has not been obtained, they must, nevertheless, be acknowledged to afford a more satisfactory explanation of the phenomena observed in chylous urine than any hitherto offered.

This paper is accompanied by a plate representing the appearance of the parts affected in one of the patients, and also the microscopical appearances of the fluid discharged, both externally and from the bladder.

XIII. *On a Case of Chylous Urine.* By A. T. H. WATERS, M. D.—In the case here related of chylous urine, the patient became well while taking very large doses of an astringent remedy, gallic acid; sometimes to the amount of 135 grains *per diem*. On this account, Dr. Waters argues that the affection is one whose main pathological feature is a relaxed condition of the capillaries of the kidneys.

XIV. *Observations on the Tactile Sensibility of the Hand.* By EDWARD BALLAUD, M. D.—A short abstract of this most elaborate paper, which occupies nearly sixty pages of this volume, is published in the number of this Journal for July, 1862.

Two plates, each containing two figures, are attached to this communication, showing the precise spots at which measurements of the sensibility of the hand were taken, with a number affixed giving the two measurements, by which the sensibility of each spot is calculated. The palmar and the dorsal, and the radial and the ulnar sides of the hand and fingers, are thus represented. These plates are reduced from photographs, so as to be undoubtedly accurate.



XV. *On the Influence of Paralysis, Disease of the Joints, Disease of the Epiphysial Lines, Excision of the Knee, Rickets, and some other Morbid Conditions upon the Growth of the Bones.* By GEORGE MURRAY HUMPHREY, M. D.—This communication, of which an abstract is published in the number of this Journal for July, 1862, is intended as a continuation of the interesting paper on the growth of long bones and of stumps in the last volume of *Transactions*.

It is accompanied by two plates, containing eleven figures, representing several deformities and rickety bones.

XVI. *An Analysis of 230 Cases of Lithotomy.* By THOMAS BRYANT.—In this paper Mr. Bryant presents an analysis of all the cases of lithotomy that could be collected from the records of Guy's Hospital for the last twenty-five years. Two hundred and thirty cases are thus brought together, and tabulated as follows:—

Age of patients operated upon	Num. of cases.	Frequency of occurrence, in percentages.		Recoveries.	Deaths.	Percentage fatal.	Proportion fatal.		Num. of cases.	Fatal.	Proportion.
2 years . . . .	6	2.60	73 cases, or 31.17 per cent.	5	1	16.66	1 in 6	Under 10 years of age.	129	6	1 in 21½
3 " . . . .	21	9.13		21	—	—	—	Med. T. & G.	109	8	1 " 13%
4 " . . . .	23	10.00		23	—	—	—	Under 15 years of age.	160	8	1 " 20
5 " . . . .	23	10.00	{ Under 10 yrs. of age, 129 cases, or 56 per cent.	21	2	4.34	1 in 11½	Med. T. & G.	130	14	1 " 9½
Betw'n 5 & 10 yrs.	56	24.34		53	3	5.34	1 in 18½	—	—	—	—
" 10 " 15	31	13.47	38 cases, or 16.5 per cent.	29	2	6.45	1 in 15½	—	—	—	—
" 15 " 20	18	7.82		15	3	16.66	1 in 6	{ Between 15 & 40 yrs. of age.	38	6	1 " 6½
" 20 " 30	13	5.65		11	2	15.38	1 in 6½		23	5	1 " 4½
" 30 " 40	7	3.04		6	1	14.28	1 in 7	Med. T. & G.	—	—	—
" 40 " 50	7	3.04	32 cases, or 13.9 per cent.	3	4	67.14	1 in 1¼	{ Above 40 yrs. of age.	—	—	—
" 50 " 60	19	8.26		8	11	57.89	1 in 1¾		32	16	1 " 1½
" 60 " 70	5	2.17		2	3	60.00	1 in 1½		33	21	1 " 1½
" 70 " 80	1	.43		—	1	100.00	1 in 1		—	—	—
	230	99.95		197	33	14.34	1 in 7				

The whole of the cases, with five exceptions, were operated upon by the lateral method. In four of the five the median operation was performed, one of which died. In one the stone was extracted through the rectum.

The well recognized fact that calculous disease is more often seen in early life is the first point attracting attention in this table; more than one-half, or 56 per cent. of all the cases having taken place in children during the first ten years of life. Mr. Bryant states, moreover, that the healthiest looking and apparently best nourished children admitted into a London hospital are those suffering with stone. According to this statement, in childhood, stone in the bladder does not appear to be a disease of debility, but, on the contrary, to belong to a condition of body which is not far from sound health.

Another most prominent point is the great difference in the mortality of the operation of lithotomy at the different periods of life. The cause of death in the majority of the fatal cases was clearly shown to have been renal disease; and it may be safely asserted that from the earliest to the latest periods of life the risks of lithotomy are exactly commensurate with the extent of the disease in the renal organs. Thus, in young children, when such disease is not of frequent occurrence, a good result, as a rule, takes place; but, at a later period, when its presence is more frequent, a



bad result has too commonly to be recorded. The best and surest guide to the diagnosis of this complication is the duration of the symptoms, and in proportion to the period of their existence is the renal affection, as well as its extent, to be suspected, and, as a result, is the danger of the operation to be dreaded. The early detection of a calculus becomes, therefore, an important point, and its early removal a necessity.

In a postscript to this communication, Mr. Bryant gives the following table, for the purpose of showing the apparent influence of chloroform upon the mortality of lithotomy.

Cases in which chloroform <i>was</i> given.					Cases in which it was <i>not</i> .				
Ages.	Number.	Cured.	Died.	Percentage.	Number.	Cured.	Died.	Percentage.	
5 years of age and under	40	38	2	5.	31	30	1	3.33	} 3.1
6 years and 10 inclusive	38	35	3	7.8	21	21	—	—	
11 " 15	19	18	1	5.2	11	10	1	9.09	
16 " 20	10	7	3	30.	8	8	—	—	} 56.2
21 " 30	5	3	2	40.	8	8	—	—	
31 " 40	2	1	1	50.	5	5	—	—	
41 " 50	4	2	2	50.	3	1	2	66.66	} 56.2
51 " 60	9	3	6	66.	10	5	5	50.	
61 " 70	3	1	2	66.	2	1	1	50.	
71 " 80	—	—	—	—	1	—	1	100.	
	130	108	22	16.9	100	89	11		

The weight of evidence afforded by this table, taking the numbers as a whole, apparently tends against the administration of chloroform. The mortality of the operation of lithotomy without the use of the anæsthetic was 11 per cent., and with it 16.9 per cent.; the difference between the two classes of cases was, therefore, 5.9 per cent.; the use of chloroform raising the mortality 50 per cent.

XVII. *On the treatment of Acute Rheumatism, considered with regard to the liability to affections of the Heart under different remedies.* By W. H. DICKINSON, M. D.—When it is considered how large a proportion of the multitudes who die every year from valvular disease of the heart, owe their fate to the progressive mischief initiated by rheumatic fever, we may appreciate the importance to humanity of any discovery by which this fatal alliance is prevented. From the multitude of facts which the profession now possesses on the subject, we believe that it may safely be concluded that the carbonates of potassa and soda, with those of their other salts, which in the body must be presumed to be converted into the carbonates, exert an especial curative power over rheumatic fever, and, if given in time, will completely protect the heart from the dangers by which it is surrounded. It is worth remarking, in connection with this subject, that, contrary to what would have been expected, no part of the prohibition which is afforded by full doses of the alkalies, or of decomposable salts, appears to be afforded by quantities which fall short of a certain definite amount. As far as the heart is concerned, "partial alkaline treatment" is useless.

The following is an abstract of Dr. Dickinson's tables, which include 164 cases :—

Number of table.	Treatment.	Number of cases so treated.	Cases in which h'tt became affected.	Average number of days in hospital.	Cases which ended fatally.
1	Venesection, with other remedies . . . . .	8	4	41	0
2	Mercury . . . . .	6	2	29	0
3	Nitre . . . . .	7	1	27	0
—	Reputed specifics (including guaiacum, Dover's powder, opium, iodide of potassium, and quinine) . . . . .	7	4	46	0
4	Salines (less than $\mathfrak{z}$ ij of salts daily . . . . .	7	2	33	0
5	Salines with nitre . . . . .	28	6	32	0
6	Salines with nitre and mercury . . . . .	7	1	36	1
7	Salines with mercury . . . . .	11	3	43	1
8	Salines with specifics . . . . .	9	5	35	0
9	Partial alkaline (less than $\mathfrak{z}$ iv of salts daily) . . . . .	8	3	28	0
10	Partial alkaline, with other medicines . . . . .	9	3	40	0
11	Full alkaline (more than $\mathfrak{z}$ iv daily) . . . . .	22	1	25	0
12	Full alkaline, with other medicines . . . . .	26	0	30	0
13	Salts of ammonia . . . . .	3	0	22	0
14	Incapable of classification . . . . .	6	1	65	0

XVIII. *Amaurosis consequent on Acute Abscess of the Antrum, produced by a Carious Tooth.* By S. JAMES A. SALTER, M.B., F.L.S., Surgeon-Dentist to Guy's Hospital.—An abstract of this communication, giving the details of a very exceptional and important case, is published in the number of this Journal for October, 1862.

This paper is accompanied by a plate giving the appearance of the peripheral terminations of the optic nerves in the retina of the two eyes, as seen by the ophthalmoscope.

XIX. *Two Cases of extensive Arterial Obstruction from separated Cardiac Vegetations, followed by Gangrene of the Lower Extremities and Death.* By S. J. GOODFELLOW, M.D.—An abstract of this communication is published in the number of this Journal for October, 1862. Instances of the plugging of arteries by so-called vegetations from the heart are not uncommon, but the extent to which the plugging took place in these cases, the number of vessels involved, the morbid changes in and around the walls of the vessels at the seat of obstruction, and the consequences which ensued give a peculiar interest to those here recorded by Dr. Goodfellow.

This paper is accompanied by a coloured plate, representing the condition of the heart and bloodvessels, and the spleen and kidney.

XX. *Case of Iliac Aneurism.* By JAMES SYME, F.R.S.E.—An abstract of this communication is published in the number of this Journal for October, 1862. In a postscript, in the volume before us, which we will transcribe, we learn the termination of this very extraordinary case. Mr. Syme here writes as follows :—

"This was communicated to the Society only a month after the operation, in consequence of my having occasion to be in London at that time. The favourable anticipations of complete recovery then entertained were not realized, as the general health, from having been greatly impaired, did not improve in proportion to the local progress. The patient's state seemed very precarious until the end of nearly three months, when so decided a change for the better took



place as to remove all anxiety. But soon after this, from unfortunately sleeping with an open window, inflammation of the pleura was excited, and it proved fatal on the 31st of July. On examination it was found that the external iliac had been torn completely across and drawn up into the pelvis, where its open mouth, being mistaken for a slit, had imposed upon the gentlemen who had assisted me, and myself, so as to make us suppose that the ligatures were applied immediately above instead of below the bifurcation of the common iliac, the whole extent of which was imbedded in the sac. The true state of matters, thus ascertained, tends to strengthen the principle of practice which it was the object of the paper to maintain."

XXI. *Contribution to the Statistics of Cancer.* By W. M. BAKER, M. R. C. S. Communicated by James Paget.—An abstract of this important contribution to surgical statistics is published in the number of this Journal for October, 1862.

XXII. *Report upon Syphilis, with reference to the more Mixed and Unusual Forms of the Primary Symptoms.* By JEFFREY A. MARSTON, M. D., Assistant Surgeon of Royal Artillery. Communicated by Henry Lee, F. R. C. S.—In this paper the writer, who, as an army medical officer, enjoyed certain obvious advantages in his observations, speaks of syphilis, and with especial reference to its more unusual, mixed, and anomalous forms. The following points are particularly treated of:—

- I. The varieties of infecting sore.
- II. The results of auto-inoculation.
- III. The occurrence of syphilitic infection after suppurating bubo.
- IV. The occurrence of constitutional symptoms following an urethral discharge clinically identical with gonorrhœa.
- V. The bubon d'emblée.

VI. The periods of incubation preceding the appearance of the two kinds of venereal sores, and the absence of any proof that we can guarantee against constitutional infection by any abortive treatment applied to the primary syphilitic lesion.

On each of these points there is much that is valuable in this Report. Reports of cases made with intelligence, and under unusual facilitating circumstances, and judged after a thorough acquaintance with the conclusions of others, render it, in our opinion at least, one of the most remarkable papers that has appeared among the many recent important contributions to our knowledge of venereal disease.

XXIII. *Case of Aneurism of the External Iliac and Common Femoral Arteries, treated by Digital Pressure. With Observations.* By HENRY LEE.—The case of aneurism reported in this communication is one of considerable interest in several respects; but the observations thereupon are not so remarkable.

The patient, a man 31 years of age, experienced some pain in the left groin after a fall while running; this increased, and a swelling, that "jumped," made its appearance. At the time Mr. Lee saw him, or some four months after the fall, the left thigh was much swollen, with some marks of livid discoloration; in the groin was a tumour four inches in diameter, and pulsating strongly. Continued digital pressure upon the left external iliac artery was kept up for some five weeks with occasional interruptions; the pain, the pulsation, and the thrill were at one time greatly diminished, but afterwards again increased. The pain and swelling became greater, the disturbance of the patient's constitution was more considerable, and four months after he came under Mr. Lee's observation he died, the limbs having become cold on the previous day.



The examination of the affected limb, which was the only portion of the body that could be examined, showed the following condition :—

“The superficial femoral artery having been exposed, it was traced to its termination in the common femoral, and this was dissected to its termination in the remains of the sac of the aneurism. All the coats of the artery were here seen to become suddenly dilated, and after the course of a few inches to terminate in an irregular and fimbriated margin. The greater part of the walls of the aneurismal cavity was formed by the surrounding structures, a complete separation having taken place between the upper and lower part of the artery. In the situation of the aneurism, when first observed, was a very firm coagulum of fibrin, of an oval form. This formed a sac complete in every part, with the exception of its two extremities, which lay in the direction of the natural course of the artery.

“The left iliac fossa contained a large cavity filled with coagulated blood which extended nearly as high as the umbilicus. The body of the pubes, and the femur for several inches below its lesser trochanter, presented a rough, irregular surface, from which small particles of bone could be detached with the nail. All the parts thus affected were in contact with the blood effused from the sac of the aneurism.

“The superficial femoral artery was found to contain portions of decolorized fibrin, which had evidently passed into it from above. A piece of this artery was removed, and although not presenting any marks of disease to the naked eye, it was torn across by very moderate extension made with the fingers.”

The complete separation that existed in this case between the upper and lower portions of the artery which formed the aneurism, makes the subject of the kind of treatment suitable to the case a very important point for consideration, but we see nothing to remark upon in what is here said.

XXIV. *Report of the Committee appointed by the Royal Medical and Chirurgical Society to investigate the subject of Suspended Animation.*—A summary of this valuable report is published in the number of this Journal for October, 1862. W. F. A.

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ART. XVI.—*Clinical Medicine. Observations Recorded at the Bedside, with Commentaries.* By W. T. GAIRDNER, Physician to the Royal Infirmary of Edinburgh, and Lecturer on the Practice of Medicine. Edinburgh: Edmonson & Douglas, 1862. 8vo. pp. 741.

THIS work claims at the hands of the reviewer a larger space than we can at present accord to it. The author's previous contributions to medical literature have secured for him the reputation of an earnest worker in the study of disease, a close and careful observer, a proficient in physical diagnosis, an acute reasoner, and a truth-seeker. At the present moment, indeed, among those who are devoted to clinical medicine, few, if any, hold a higher place in the estimation of medical readers on this side of the Atlantic than Dr. Gairdner. They are fully prepared to receive with satisfaction a work from his pen with the above title. We should be glad to give the work an extended analytical reviewal. We should render a service by so doing to the readers of this Journal; but the service will perhaps not be less if our brief notice may lead some to read the work who would be satisfied with a more comprehensive examination of it by the reviewer.

The work is made up of various clinical lectures, together with a variety

of papers communicated at different times to medical societies. Several of the latter have already been published in medical journals. The work is fragmentary, that is, the diverse subjects treated of have no special connection with each other; all, however, are subjects of interest and practical importance. We must content ourselves with an enumeration of them, and a few annotations with reference to each.

1. Retrospect of Cases treated during the Session 1855-'56.

The author devotes a lecture to a summary of facts pertaining to the histories and treatment of the fatal cases which had been under observation in the Edinburgh Royal Infirmary. The lecture will be read with interest by those connected with large hospitals, either as students or practitioners.

2. Remarks on the Treatment of Pneumonia, and especially on the Treatment by Bloodletting.

Although there are reasons why pneumonia should not be considered as in all respects the representative of acute inflammations generally, the profession seem to have agreed to regard it in this light. As so regarded, two important questions are at this moment matters of controversy. One of these questions is, has the type of the disease changed so that the appropriate plan of treatment now called for differs from that which was formerly efficacious? The other question pertains to the propriety of bloodletting; is it ever called for, and if so, under what circumstances? With regard to the former of these questions, Dr. Gairdner considers it to be a question of observation, and he accepts the statements of his seniors who have been able fairly to compare the disease at different remote periods. As regards the second question, he thinks that while, as a rule, the modern comparative disuse of bloodletting is well founded, it may be required in exceptional cases. The *criterion* of such cases, in his view, will be the urgency of the fever, pain, and dyspnoea, and the general strength and condition of the patient, not the pathological condition of the lung, as ascertained by physical diagnosis.

3. Five Years' Hospital Experience of Pneumonia.

The aggregate number of cases treated during these five years is stated to be from 60 to 100. During this period, out of ten or eleven fatal cases of inflammatory affections of the lungs, only *one* was fairly a death from idiopathic or uncomplicated pneumonia. This result is regarded as showing the very slight tendency of pneumonia *per se* to a fatal result; in other words, death is owing almost invariably to the coexistence of other affections, either antecedent or concomitant. The author states that he has adopted no routine method of treatment in pneumonia. He believes that "what is to be treated is not so much the *pneumonia* as the *individual patient*." He attaches more value to antimony than to any other remedy. Many cases were treated with only the common cough mixtures. He gives opium as a palliative. Mercury he employs very little. Stimulants were used freely when the vital powers seemed in danger of failing. Food was neither withheld nor pressed.

4. On the Use of Alcoholic Stimulants in Hospital Medical Practice.

This lecture is designed to suggest certain inquiries respecting the use of alcoholics in hospital practice. Has it not become a custom, of late years, to direct spirits, wine, and malt liquors to hospital patients too indiscriminately? and is not such a custom productive of harm, if not physically, in a moral point of view, by conducing to intemperate habits? We fear there is occasion for these inquiries in the hospitals of this country as well as in Europe. Dr. Gairdner regards alcoholic stimulants as *medicines*, not



as *food* after the view of Dr. Todd. The latter view, doubtless, leads to their freer use than if they are employed purely for a remedial object. Dr. G. recommends that monthly returns should be made of the amount of alcoholic liquors supplied in each ward, and an average of the amount given daily to each patient. "By such averages," he remarks, "physicians would be invariably guided to the truth; and the results of various practice would, when carefully compared, supply data hitherto wanting for the settlement of a great many scientific questions connected with alcoholic stimulants."

#### 5. The Duty of the Physician with respect to Alcoholic Stimulants.

Under this head is introduced a review of Professor Miller's volume on "Alcohol; its Place and Power." Dr. Gairdner's views seem to us to be eminently judicious, avoiding, on the one hand, fanaticism on the subject of temperance, and, on the other hand, recognizing fully the grave responsibilities of the physician in connection with this subject. He quotes the remarks of James Jackson on the subject in his "Letters to a Young Physician," as embodying fully his own views.

#### 6. Influenza.

In two lectures on this subject he gives the facts of an epidemic which had recently occurred. We believe the author to be correct in regarding the disease as essentially a fever, of which the catarrh is the local expression. He cites the statistics contained in the Registrar General's Report of the Mortality in London, as showing a considerable increase of the death-rate in consequence of the effect of the epidemic influence on different diseases.

#### 7. Distinctions of Typhus and Enteric (Typhoid) Fevers.

Over one hundred pages of the volume are occupied with typhus and typhoid fevers, including some remarks on scarlatina. Dr. Gairdner prefers Prof. Wood's title, enteric, to typhoid fever. He adopts the doctrine of the non-identity of this fever and typhus. Most of our readers, doubtless, will agree with him in this opinion, albeit the identity of these fevers is maintained by such high authorities as Stokes, Magnus Huss, and others. He gives some facts which go to show the origin of the two fevers from two distinct poisons. He suggests the propriety of separating typhus and typhoid cases in hospitals, in order to secure the latter from the infectious miasm derived from the former. He is of opinion that typhus has within the last few years undergone a modification in its severity, being less fatal than formerly, and also that some of its type features have changed. We must pass by this very interesting portion of the work with these few notes, commending it to the careful perusal of the reader.

#### 8. Pathology and Treatment of Cholera.

The author gives concisely the morbid appearances found on the examination of eighty-nine fatal cases in the epidemic of 1849. The examinations were made in the theatre of the Royal Infirmary by Dr. G. in the course of his duties as pathologist to that institution. His general conclusions as to the treatment are contained in the following extract:—

"We are most firmly persuaded that cholera, like all other diseases dependent on a specific poison, has a spontaneous tendency to cure after the virus has exhausted itself; and that the treatment will be most efficiently and successfully accomplished by discarding, in the majority of cases, heroic remedies, by following out the indications afforded by the feelings and desires of the patient, and, as Cullen said, by attending to those conditions and means calculated to 'obviate the tendency to death.' Now, all that we yet know of the pathology of this disease tends to ascribe the fatal result in the collapse to a slow asphyxia induced by the imperfect fluidity of the blood. We would, therefore, endeavour



by every means to supply fluid to the blood through the intestines, the skin, the lungs, or at least to prevent, in as far as possible, the fluids of the body from being thrown off by those channels."

#### 9. Syphilis.

After a brief but clear account of the secondary and tertiary symptoms, this lecture is occupied with an account of several cases which had previously been made the subject of bedside remarks.

#### 10. Hysteria; Delirium Tremens; Dipsomania.

Delirium tremens is regarded as a spontaneously curable disorder, but is to be treated by remedies given in strict subordination to good nursing and carefully adjusted diet and regimen. Opium, chloroform, and alcoholic stimulants are useful if judiciously adapted to the indications in different individual cases. In connection with dipsomania the author offers some highly judicious remarks on what may be called moral imbecility. Here is a subject of great difficulty, but not less important than difficult in its medico-legal relations.

#### 11. Pleuritic Effusion; Diagnosis and Prognosis; Question of Thoracentesis.

This subject occupies nearly a hundred pages. The points involved in the diagnosis are considered in connection with several cases which offered unusual features. In respect of the prognosis of acute pleurisy, the author's experience is quite opposed to a statement contained in another recent work.<sup>1</sup>

Dr. G. states that, during eleven years of hospital practice, he has met with only two cases of fatal acute pleuritic effusion. The inference is, that thoracentesis is very rarely called for as a measure to save life. May it not be advisable, however, both in acute and chronic pleurisy, in cases in which the amount of effusion is not sufficient to place life in danger? The author is inclined to the affirmation to this inquiry, since he has become acquainted with the facts contributed by Dr. Bowditch, of Boston, and the means employed by Dr. B. to withdraw the liquid without the introduction of air.

#### 12. Pneumothorax.

A case is given in which pneumothorax from perforation ended in recovery. Dr. Gairdner asserts that in at least six or seven cases he has witnessed phenomena denoting cured pneumothorax. The general impression, as we suppose, is that this affection is incurable, and this is certainly the rule. We here met with an instance in which all the characteristic physical phenomena were unmistakable, and the recovery was complete. In that instance the perforation was supposed to be non-tubercular. But, if not cured, pneumothorax may continue indefinitely and the health of the patient apparently be perfect. We communicated not long since to the New York Pathological Society a remarkable instance of this kind. In this case the perforation proceeded from tubercle, but the latter affection was arrested, and the patient was cut off by an attack of pneumonia. The pneumothorax was not suspected until the attack of pneumonia, but, from the appearances after death, the former affection must have existed for a long period. The cure is effected by means of the pleurisy, the perforation becoming sealed up by the pleuritic adhesions. Pleurisy is thus both protected against perforation and a means of cure when perforation occurs.

13. Phthisis Pulmonalis; Empyema and Pneumothorax; Hydatid Tumour of Lung; Emphysema of Lungs; Remarks chiefly on Physical Diagnosis.

<sup>1</sup> *Renewal of Life*. By Dr. Chambers. Reviewed in this number.

These subjects occupy nearly fifty pages. They are illustrated by cases which are interesting and instructive. With respect to emphysema the reader will be disappointed in not finding an exposition of Dr. Gairdner's views of the mechanism of this lesion. We regret this deficiency the more because, with the exception of a review in the *British and Foreign Medico-Chirurgical Review*, number for April, 1853, his writings on this subject have not been republished in this country, and are, therefore, not so well known as we could desire. The chief point of interest which is considered in this volume is the reality of the auscultatory sign described by Laennec as pathognomonic of emphysema, viz., the *râle sec à grosses bulles*. This sign has been ignored by modern auscultators. Dr. Gairdner thinks there is such a sign, and that Dr. Laennec's description is correct. We must confess that the proof is not to our mind altogether clear.

#### 14. Aneurism.

To this subject over a hundred pages are devoted. It is by no means the least valuable part of the book; for those especially who are interested in the physical diagnosis these pages will only repay a careful perusal. The conclusions drawn from the study of the cases which are presented are as follows:—

"1st. That aneurism, when accompanied by well-marked angina pectoris, is probably situate in the ascending portion of the arch, and near the cardiac plexus of nerves. The natural course of such aneurisms is to burst into the pericardium, or to compress, perhaps open into, the auricles or the pulmonary artery, causing, in many cases, cyanosis and sudden death."

"2d. That internal aneurism, when attended by laryngeal symptoms, is likely to be so placed as to involve the right or the left recurrent nerve, *i. e.*, either in the innominate artery, or on the posterior and inferior aspect of the arch; in either of which situations, but especially in the latter, an aneurism may cause death by laryngeal suffocation before it is large enough to be readily detected by physical diagnosis."

Tracheotomy, under these circumstances, may prolong life, and is warrantable.

"3d. That aneurism, characterized chiefly by bronchial asthma and orthopnoea, is probably situate in the commencement of the descending portion of the arch, or, at all events, so as to compress the pulmonary plexus of nerves; and that its consequences may be looked for in the obstruction of one or both bronchia, at first with the symptoms and physical signs of asthmatic bronchitis, and afterwards of pneumonia or pleurisy."

"5th. That dysphagia indicates pressure either on the œsophagus, or on the pneumogastric nerve, and a corresponding situation of the tumour."

"6th. That all aneurisms coming within the range of physical diagnosis, and not attended by any of these symptoms, must necessarily arise either from the descending aorta, below the range of the pulmonary plexus, or from the upper part of the arch, projecting upwards and forwards; as it is in these situations alone that a thoracic aneurism can attain sufficient bulk to be discoverable, without involving important internal structures, and leading to very marked functional disturbance."

Dr. G. bears testimony to irregularity of the pupils as one of the signs of an aneurismal tumour pressing on the sympathetic nerve.

#### 15. Cardiac Murmurs.

The sixty-six pages occupied with this subject form a very valuable portion of the work. The inadequateness of murmurs alone as signs of grave lesions is enforced and exemplified by a series of cases. The distinctive characters of the aortic and mitral murmurs are clearly described and made still clearer by means of diagrams; so also of pulmonic and tricuspid mur-



murs. The latter (*i. e.* tricuspid), Dr. G. thinks, are much more frequent than is generally supposed; they are not infrequently confounded with mitral murmurs. We commend this portion of the work to those engaged in the delightful study of cardiac auscultation.

16. Retrospect of 200 Cases under Treatment in the Royal Infirmary, during the Winter Session 1859-'60.

This, with a concluding lecture on the "Study of Clinical Medicine," occupies the last eighty pages of the work.

We repeat that, had time and space permitted, we should gladly have engaged in an extended analytical review of this work. We consider it to be a very valuable contribution to the literature of practical medicine. The cases which are given were recorded either by the author or under his dictation; and we agree with him entirely in the opinion that this is necessary, in order that the clinical teacher may become thoroughly conversant with the cases which he undertakes to study for the benefit of his pupils as well as for his own improvement. It seems to be a common impression that any young physician or an advanced student is, at once, as a matter of course, competent to record cases; but the truth is, it is an art to be acquired by practice, requiring not only a certain amount of knowledge, but an aptitude for observation and description which is to be corrected and improved by discipline, and which some can never acquire. To exercise the senses intelligently and accurately, to observe and reason without pre-conception or bias, to describe literally and truthfully—these are accomplishments by no means so general or so easily acquired as many seem to suppose. As evidence of this, how few of the many contributions to clinical medicine command or deserve entire confidence!

Of Dr. Gairdner as a clinical teacher we have already spoken. We have in this volume his bedside teachings, divested, it is true, of the interest and force derived from witnessing the cases and listening to his voice, but, as some compensation for this loss, perhaps expressed with more precision than is to be expected in an oral discourse. As an American, it is refreshing to find in the volume frequent references to his co-labourers on this side of the Atlantic. The names of Jackson, Ware, Bowditch, and others, are repeatedly mentioned. Aside from the practical information which the volume contains, its tone is well suited to promote, in the minds of those entering upon clinical study, the spirit of a true philosophy.

A. F.

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ART. XVII.—*A System of Surgery, Theoretical and Practical, in Treatises by various Authors.* Edited by T. HOLMES, M. A., Cantab., &c. &c. In four vols. Vol. III. London, Parker Son and Brown. 1862. 8vo. pp. 916.

THE third volume of this authoritative publication has been for some months upon our table, having made its appearance in excellent time for an enterprise of its peculiar character, and considering the number and occupation of the parties engaged upon it. They and their industrious editor have done so well in their progress that we may look forward with confidence to an early fulfilment of the promise of the preface in the appearance of the



concluding volume, with the index, which is to render the whole at once a most convenient and complete text book on hospital surgery.

The present volume at least equals its predecessors in practical interest and value, both as to subjects and the mode of treating them. Indeed we are tempted to regard it as superior in some respects. The circle of authors extends beyond the officers, mostly junior, of the London hospitals, and thus includes more weight and less merely local character; many of the subjects involve the most important and freshly mooted questions in surgery; and all appear to be considered not only with practical skill and experience, but with a careful and generally intelligent reference to the labours of the latest authorities of this country, as well as of Europe. These constant references are invaluable by enabling the reader to follow out his author in his whole course of inquiry, and thus add much of the eclectic usefulness of an encyclopedia to the more direct availability of the work as a clinical guide.

There is not much to be said in favour of the order of arrangement as thus far exhibited. In this respect the editorial offspring of Mr. Holmes must share the lot of many other valuable productions of his British brethren. His system is rather a collection of essays developed and brought together with a common object, but very much at the convenience of the authors, yet under the rule of a director who, doubtless, intends to reconcile all confusion and to avoid the trouble which no classification will prevent, by the ample index which he has announced as in course of preparation.

The papers of this volume are on operative surgery, on the diseases of the organs of special sense (excepting the eye, already published), of the air-passages, and of the organs of circulation, locomotion, and innervation. Lastly, diseases of the organs of digestion are commenced, by a treatise on the affections of the tongue.

In regard to operative surgery, a regular treatise would have led to constant repetition of other portions of the work, and is therefore not attempted. The section is limited to a chapter on minor surgery, one on amputations, another on anæsthesia, and a fourth on plastic surgery, illustrated by the description of such operations as could be conveniently separated from the sketches of the lesions for which they are practised.

The article on minor surgery is brief but practical, and sufficiently comprehensive for a series which includes the consideration of minor surgery topics under various other heads.

Bandages and their applications are disposed of in the first eight pages. Then come the immovable apparatus, in various forms of plastic dressings, for fractures and articular affections; sutures and their application; counter-irritation; acupuncture; electro-puncture; hypodermic and endermic medication; issues; setons; blood-letting; vaccination; caustics; and, finally, the strangulation of nævi and other tumours.

Perhaps the most interesting portion of this chapter is that on sutures. It might have been still more explicit with advantage, and yet is up to the times on the use of silver and iron wire. The author is not very clear in his account of the introduction of the metallic suture into general practice. Dr. Simpson is mentioned, without a date, as the first to draw attention to the subject in his country, and Dr. Sims is then named as the first to make the application in America, "in 1849." The author cites the Anniversary Discourse, before the N. Y. Academy of Medicine, for 1858, by Dr. Sims, "On Silver Sutures in Surgery," without considering that this discourse preceded the paper of Dr. Simpson, and may have prompted the investi-

gations reported in that paper. He also quotes the passage from Fabricius ab Aquapendente, in which the wire suture was recommended two centuries ago; and refers to a report in the *London Lancet*, Nov. 29, 1834, which shows that Mr. Gossett successfully treated a case of vesico-vaginal fistula by silver-gilt wire sutures, fifteen years in advance of Dr. Sims. He should have referred to the experiments of Levert in America (see this Journal for May, 1829), and the cases of Dieffenbach in Germany, and of Mettauer in this country (see this Journal for Nov. 1833 and Feb. 1838), to show that the metallic substitute was known and appreciated in modern practice on both sides of the Atlantic, before the date of Mr. Gossett's publication. Heister, too, as well as Fabricius, could be quoted to prove that the idea of the wire is by no means a recent one in surgery. Still, Dr. Sims is entitled to the merit of its final introduction into practice, and deserves the principal share of the thankful acknowledgment which is given in this article to Dr. Simpson.

The author agrees with Dr. Sims in preferring the silver to the iron wire. A considerable experience with both materials, and especially with iron, inclines us to coincide entirely with Dr. Simpson in being content with well annealed iron wire as quite equal to silver; but a still larger experience with lead wire has convinced us that it is more desirable than either silver or iron in the great majority of cases, on account of its greater cheapness than silver, and its superior pliability. The only objection to the lead is its want of strength in case of strain; though, in some instances, this is a positive advantage.

The next two essays are on amputations and anæsthetics. Their author, Mr. Joseph Lister, Prof. of Surgery in the University of Glasgow, has given two papers, which are excellent, theoretically, practically, and historically; each one being so good a resumé, in fact, that we should be glad to see them published together by their author, separately from the "system," like the tract on gunshot wounds, by Longmore. With some additions and illustrations they would make a very desirable companion to that admirable little book, for the army surgeons of both countries.

There are certainly no subjects upon which the surgeons of America are, and for two years past have been, more keenly alive than these two of amputations and anæsthetics. A vast deal of individual experience, of course, has been acquired, and must continue to accumulate upon the various practical questions which were still more or less unsettled on these points among sensible practitioners at the outbreak of our civil war. But, until the master records of this experience have reached us, in some tolerably digested form, we know of nothing that would attract a closer practical attention, or receive a more effectively useful sifting than a summary like this of Professor Lister's, which is so evidently the work of an accomplished clinical teacher and hospital operator, and so free from the merely mechanical routine of the dissecting room. Our younger army surgeons may safely adopt Mr. Lister's general principles of operating and dressing; and even those who begin to feel like veterans with the amputating knife and in the hospital, may study his pages with immediate advantage to their labours, and with probably still greater benefit to the final establishment of their own conclusions. We regret, therefore, our inability to dwell upon many matters which have struck us as quite worthy of special consideration; and we sincerely hope that the author may allow the separate circulation of both papers, in such a shape as will bring them within reach of the hundreds who could soon test their precepts in the field.



The article on anæsthetics is short, but clear and practical, at least in regard to chloroform. Very little is said about ether, except that it is considered less potent and more irritating, less agreeable in odour, more volatile, and more inflammable than chloroform; and that it has therefore been generally superseded by the latter in Europe, although still extensively used in America. Both agents have been so largely employed by intelligent operators in the recent campaigns of our armies, that some definite comparison must by this time have been put on record, which may hereafter determine the real superiority, for availability and pleasant action, of chloroform to ether, and its approximately or entirely equal safety under proper management. It is to be hoped that some of our army surgeons have at last discovered the most effective and economical mode of *safely* using both ether and chloroform for anæsthetic purposes. They have probably become convinced that the danger to life, which amounts to nothing, without gross carelessness, in the employment of ether, is not seriously increased in the resort to chloroform, and may be prevented almost wholly by sufficient care in the use of either of these two anæsthetics. They must be satisfied also, by this time, that great prostration from shock or other causes is or is not a contra-indication for anæsthetic action; and they ought to be able to tell us whether, in case of such prostration, ether or chloroform is the preferable agent.

Prof. Lister expresses strong doubts of the injurious agency of chloroform in some of the alleged cases of fatal inhalation. Nor does he agree that the danger is any greater in disease of the heart. He is more inclined to attribute a positively sustaining power to the chloroform anæsthesia, which enables patients to survive under depressing influences that might otherwise destroy them. This view of the action of chloroform leads him to regard it as an important agent to be relied upon in averting the danger of prostration from injury, and, as therefore aiding very materially in the performance of operations before reaction has commenced. We believe this position to be in accordance with the civil and military experience of this country, as well as of Europe, and are disposed to regard it as applicable to ether no less than chloroform, at least in hospital practice. What may be the rule, as determined in the field, we have not learned from actual experience. Chloroform, however, is so much more convenient for carrying purposes, that the question between it and ether, in the field, may be of comparatively little practical moment. If ether can be transported without loss from evaporation as securely as chloroform, and can be made to produce its anæsthetic effects as promptly and with as small a consumption of the supply, which is necessarily limited on such occasions, then the certain difference in favour of the ether as to safety, at least with careless operators, would justify, if not demand, its preference to chloroform. We hope to see the administration of ether shown to be, in proper hands, as prompt and economical in its action as chloroform, although there is no prospect of its becoming less likely to evaporate or burn; and we shall expect that its use as an anæsthetic will rather be increased than diminished in civil life, by the observations of those who are now watching its *modus operandi* in the military hospitals and fields of this country.

It is the *overdose* of chloroform, or its too long continuance, that, in Mr. Lister's opinion, is the most frequent cause of death. In this he is on the side of the majority of those who have studied the vital question both as to ether and chloroform; and touches at once upon the leading practical point of the whole inquiry. Stertor and obstructed respiration



are the alarming signs which the surgeon must attend to with the greatest care.

"The most convenient test of the patient being prepared for undergoing the operation is presented by the eye; not in the size of the pupil, which is constant in its indications, but in what is commonly spoken of as insensibility of the conjunctiva; though in truth it has no relation to sensation, which is abolished considerably earlier; but when unconscious winking no longer occurs, on the eyeball being touched with the tip of the finger, we have a good criterion of the suspension of reflex action in the body generally. At this period the pulse is about in a normal condition, and the respiration is usually either natural or very slightly stertorous, though persons with a tendency to swoon may do so almost from the commencement of inhalation. But if the administration of the chloroform be further persisted in, strongly stertorous breathing will soon be induced, and will become aggravated until it passes into complete obstruction to the entrance of air into the chest, though the respiratory movements of the thoracic walls still continue. Occasionally, however, the premonitory stertor is deficient, and the breathing more or less suddenly obstructed. This is a point of great importance; for, without close attention, it may escape notice, when the patient will be placed in imminent peril. For, though the respiration may be resumed spontaneously, this cannot be relied on, and it would seem that when chloroform is given in an overdose, the cardiac ganglia are apt to become enfeebled; and, on this account, asphyxia produces more rapidly fatal effects than under ordinary circumstances. But if the obstructed state of the breathing is noticed as soon as it occurs, and the cloth is immediately removed from the face, and the tip of the tongue seized with a pair of artery forceps and drawn firmly forwards, the respiration at once proceeds with perfect freedom, the incipient lividity of the face is dispelled, and all is well." (pp. 100-1.)

Prof. Lister is "anxious to direct particular attention to the drawing out of the tongue, because I am satisfied that several lives have been sacrificed for want of it." The traction should be decided, however, or it may fail. We have been very much impressed with the effect of this expedient on two different occasions—one of imminent death under chloroform, and the other of a similar state of things occurring to a patient who was supposed to be inhaling ether. In each case respiration had ceased for a moment, and the countenance had become rigid, when we threw the patient's head over the edge of the bed with one hand, and, with the other, seized the tongue and forcibly drew it out as far as possible. The air rushed in with a peculiar sound, the patient heaved a sigh, and again began to breathe. In the chloroform case there had been no mechanical interference with the respiration on the part of the assistant who held the folded napkin. In the ether case, the patient was deliberately suffocated through the carelessness of the assistant, the ether being inhaled from a cup-shaped sponge in a stiff and entirely close pasteboard cone, which was so firmly pressed upon the face as not to allow any air whatever to mingle with the anæsthetic. The hand, with its fingers, is the best instrument to employ for this traction of the tongue, because it is always ready and leaves no mark behind.

Our author gives a very interesting account of some investigations, made with great care upon himself, in regard to the nature of the stertor and the rationale of the traction of the tongue in stopping it, which satisfied him that the pulling out of the tongue does not act merely mechanically, but through the nervous system by a kind of reflex operation. He found that, besides the *palatine* snoring, there is another form

"which is the profound stertor essentially concerned with chloroform, depends on a cause seated further down the throat, and, for reasons to be given immediately, may be termed *laryngeal*. By digital examination of my own throat, I

found that the latter variety, and the complete obstruction into which it passes, could still be produced when the tongue was separated by a considerable interval from the back of the pharynx, while a free passage to the air existed onwards to the lips, which showed that the general belief that the obstruction depends on a 'falling back of the tongue' is erroneous. Also the epiglottis, instead of being folded back during the obstruction, as some have supposed, had its anterior edge directed forwards; and though it was thrown into vibrations when the stertor was strongest, it was evident that the cause of the sound was more deeply placed. I also found that, although firm traction upon the tongue abolished the obstruction and the stertor, it did not appear to produce the slightest change in the position of the base of the tongue; nor did it move the os hyoides upon the thyroid cartilage, as examined from without. Hence I was led to conclude that the beneficial effect of this procedure could not be explained mechanically, but must be developed in a reflex manner through the medium of the nervous system." (p. 102.)

He goes on to describe his observations on his own vocal apparatus with the laryngoscope. He then ascertained that

"The true laryngeal stertor results from the vibration of the portions of mucous membrane surmounting the apices of the arytenoid cartilages, *i. e.*, the posterior parts of the aryteno-epiglottidean folds (thick and pulpy in the dead body, but much more so when their vessels are full of blood), which are carried forwards to touch the base of the epiglottis during the stertorous breathing, and are placed in still closer apposition with it when the obstruction becomes complete. Having one hand at liberty, I was able to observe the effect of drawing forward the tongue under these circumstances, and saw that firm traction induced the obstructing portions of mucous membrane in contact with the epiglottis, to retire from it for about an eighth of an inch, so as to allow free passage for the air, while the epiglottis itself was not moved forwards in the slightest degree." (pp. 102-3.)

We are unable to give more space to this interesting paper except to note that he continues to urge a close watching of the respiration as all-important, and a disregard of the pulse as immaterial and likely to lead astray, and that he gives chloroform without hesitation in cases of heart disease; quoting, in support of these precepts, his own eight years' experience, and the authority of Mr. Syme, who has long observed and taught them without having lost a patient in about five thousand trials.

Plastic surgery is the subject of the article next in order, by Mr. Holmes Coote. Beginning with a short historical sketch of the rise of Taliacotian operations under the auspices of the famous professor of Bologna, Mr. Coote, occupies some seven pages with an instructive review of the general principles of plastic surgery. In the course of this he takes care to make the right acknowledgment to Dr. Marion Sims for "his energetic advocacy" of the use of metallic sutures, and for their consequent introduction into practice, especially in plastic operations. Rhinoplasty and cheiloplasty are fully discussed, including the restoration of the nose, hair-lip, lower lip and upper lip; also plastic operations on the ear, on the penis, the management of adherent and contracted vagina, and of cicatrices from burns and escharotics. The directions are ample and easily understood, with the assistance of illustrations in some instances, and contain many very useful hints for the guidance of inexperienced practitioners. His advice on the treatment of contracted cicatrices is especially worthy of recollection; it is that "no cutting instrument should be used." Again, "It may be laid down as a rule, almost without exception, that a cicatrix should never be touched with a knife." He tells us that these operations have for some time past been discarded as useless at St. Bartholomew's and some other leading hos-



pitals of London. The best that can be done is, with gradual dilatation, extension and pressure, aided by the application of unguents, to stimulate the removal, by absorbent action, of the contracting tissue. The results of this treatment, he assures us, "are mostly satisfactory, and failure proceeds from want of patience, which substitutes forcible, and, as it were, spasmodic efforts, for persevering and unremitting gentleness."

Under the head of "Diseases of the Organs of Special Sense," Mr. James Hinton contributes a carefully prepared and practical chapter on "Diseases of the Ear," and Mr. Ure a well arranged one on "Diseases of the Nose," which is equally practical in character.

The next paper, on "Diseases of the Larynx," was the unfinished work of the late Mr. Henry Gray, whose sudden death prevented its final revision by the author. The disorders treated of are acute laryngitis, cedema of the glottis, erysipelatous laryngitis, diffuse inflammation of the cellular tissue of the larynx, syphilitic ulceration of the larynx, tumours of the larynx and trachea, hysterical affections of the larynx, spasm of the glottis, chronic laryngitis; the same with ulceration, and with affections of the laryngeal cartilages as the result of the inflammation. Mr. Gray's chapter is followed by a supplementary one on the "Laryngoscope," by Mr. A. S. Durham, which was rendered necessary by the fragmentary condition in which the notes on this subject were left by their lamented author. Mr. Durham's short account of this new instrument and its applications appears to be sufficient, historically and practically, to afford an efficient introduction to its use, and to show its really great value in the chronic disorders of the larynx and all the obscure affections of this organ. Mr. Durham is not very decided as to the general utility of the laryngoscope; but while ready to admit that it may remain in the hands of the few, he is yet convinced that it is destined to do much good to the many. In this respect it does not differ from the most of its predecessors in the march of improvement; and it will not be allowed to remain in obscurity merely on account of the ignorance and indolence which obstruct the progress of every new instrument where the necessary skill in manipulation and observation are only to be acquired by special and laborious exercise.

The next grand division is devoted to diseases of the organs of the circulation, and begins with a chapter by Mr. C. H. Moore, surgeon to Middlesex Hospital, on the "Diseases of the Absorbent System." Wounds of lymphatics, inflammation of lymphatics (angioloecitis), inflammation of lymphatic glands (adenitis), hypertrophy and atrophy of glands, strumous disease of glands, lymphatics in syphilis, gonorrhœa, cancer, in indolent diseases—including ulceration, erysipelas and nævi, morbid contents of lymphatics, obstruction, obliteration and varicosity of lymphatics, excision of glands by operation—are severally discussed with care and ample fulness where they are not considered in other parts of the work. Strumous, syphilitic, gonorrhœal, and cancerous disease of the glands, for instance, are but slightly touched upon, as they are sufficiently studied in the articles on their several forms of general disorder. Other special affections of the lymphatic system receive a close practical consideration in regard to their pathology and local and general treatment.

Next in order comes the section on "Diseases of the Veins," by Mr. G. W. Callender, Assistant-Surgeon to St. Bartholomew's Hospital. The first topic is adhesive phlebitis, or inflammation of the lining membrane of the veins, which Mr. Callender agrees with the more recent pathologists in regarding as of "more than doubtful occurrence." He compares the views



of John Hunter, Meckel, Gendrin, and others, with those of Guthrie, Travers, Lee, and others, in opposition to them; and, after referring to the experimental demonstration by Lee of the fallacy of Gendrin's experiments as to plastic deposits in irritated veins when really deprived of blood, the author shows conclusively, by a repetition and extension of Mr. Lee's experiments, that in the lower animals, at least, the internal coat does not inflame when irritated; and that the lymph, when present, finds its way into the vein from without, and is not exuded from or through the lining membrane.

"From these considerations," he says, in conclusion, "it is manifest that adhesive phlebitis has been very variously described and accounted for, and that its occurrence has been denied by some pathologists. There can be no doubt but that veins are repaired without its aid; and experiments upon animals, taken for what they are worth, show that these vessels do not inflame when irritated. Absence of vessels from their lining membrane points, one would think, a reason for this immunity. A tissue thus circumstanced may eventually be involved when adjacent parts are affected, but it does not originate disease. As the barrier between tissues, often inflamed on the one hand, and the blood-stream on the other, it would obviously discharge an important function did it prevent lymph from being effused on the internal surface of the vein. For, although this lymph might be swept away without producing any local effect, it could not be mingled with the blood without risk of spoiling that fluid, or of causing secondary mischief by becoming entangled in and so obstructing the capillary vessels." (p. 291.)

Before going on to the description of suppurative phlebitis or diffuse inflammation of the veins, a very interesting account is given of a condition which until recently has been too often confounded with inflammatory action—coagulation of blood within the veins, *embolism*, or *thromballosis*, as Mr. Callender prefers to name it. The nature, causes, and consequences, as well as the diagnosis and treatment, of this peculiar disorder of the circulation, are very carefully explained and illustrated in the course of about ten pages, which are well worthy of the reader's attention.

Suppurative phlebitis is regarded by Mr. Callender as "in fact nothing more than a diffused phlegmonous inflammation," which "follows the course of veins which, acting as conductors, favour its rapid extension in the direction of least resistance; and hence, as a rule, the disease passes from the small to the larger vessels, since the cellular surroundings of the latter offer the easier route for its advance." We cannot follow him in support of this position, which we believe to be the true one, and well sustained, or in the excellent account of the disease and its treatment, and the distinction to be made between it and clot-obstruction, or thromballosis.

The next most important topic of the paper is phlebectasis or varicose veins. He calls attention to the fact, known to hospital surgeons and especially noted by recent continental writers but overlooked by Boyer and others, that the seat of varicose disease is as often in the deep veins of the lower extremities as in the trunk of the saphena, or in that of any of the superficial veins, and that it is just as likely to commence in the one set as in the other.

The management of varices in the early stage, either slightly involving the surface vessels, or being limited to the deep ones, is not difficult, and admits of permanent benefit, but the disorder is incurable if of long standing, although capable of material palliation. From all the measures resorted to for the purpose of obliteration, we are justly told—

"It is quite certain that only a temporary benefit is obtained; for after one mass of varices has been removed, the anastomosing veins around soon acquire a varicose condition, and the disease is perpetuated. In deciding upon performing any one of the many operations open to choose from, it must be the relief, not the cure of the varix which is anticipated; and no doubt there are cases, yet not so many as some would have us to believe, in which the pain of the varix, the impossibility of healing a large ulcer, the unfitting of a patient for his every day work, justify the operation for the temporary benefit." (p. 318.)

We have long since given up the hope of securing more than a temporary relief, of varying amount and duration, by these operations, and hence accord entirely with this rather discouraging view of an expedient which is too recklessly resorted to by young operators. We agree also with Mr. Callender in the opinion that the danger of these operations on varicose veins, especially with the caustic, the pin, or the metallic suture, is exaggerated, at least in regard to properly selected cases. The liability is not so much in the veins as in the tissues directly around them, and depends not on the local but the general condition of the patient. This general condition, however, from the very nature of the disease, is more or less likely to be sufficiently bad to render the radical operations dangerous, even when the dyscrasy may be very slightly manifested. This kind of interference, therefore, can only be justified in any case by the urgent necessity which serious inconvenience, suffering or positive disability may create; and, as a matter of course, it should be resorted to only under the best available sanitary influences and precautions.

The first of the essays on Diseases of the Arteries, gives us an excellent account of atheroma, and obstruction, including embolism, of the arteries, by Mr. C. H. Moore, Surgeon to the Middlesex Hospital, which is so full of interest and practical instruction, that we regret our inability to dwell upon it as a most complete exposé of its subjects. This is followed by an admirable clinical monograph on aneurism, by Mr. Holmes, the editor, assisted in certain parts by Mr. E. A. Hart, Surgeon to the West London Hospital.

Mr. Hart contributes the sections on the treatment of aneurism by digital pressure, by flexion, by manipulation, by galvano-puncture, by coagulating injections; also those on arterio-venous aneurism, cirroid aneurism, and aneurism by anastomosis. Mr. Holmes gives us a very complete and well digested view of all the other branches of the subject, including the regional surgery and the operations on the various arteries. An unusually clear and practical exhibition of the pathology of aneurism is given in the introductory description of the various kinds of aneurism, and of their causes and progress. This is followed by a comprehensive and equally practical inquiry into the spontaneous cure, including the medical treatment; the symptoms and the diagnosis; and, lastly, the mechanical treatment of aneurism by the various methods.

A convenient feature of the introductory portion is a nomenclature table, which exhibits the terms adopted by Mr. Holmes, in parallel columns with those used by the French and English, as exemplified in Broca's *Treatise* and Erichsen's *Science and Art of Surgery*. This table is useful in presenting the author's concise and accurate anatomical definitions, while, by comparing his nomenclature with that in common use, it avoids the confusion and ambiguity which even the practical superiority of his specific terms would not justify in a clinical essay on a class of anatomical lesions which are intricate enough to puzzle the student under any circumstances.

The different topics, as treated by Messrs. Holmes and Hart, are full of



interest, historically as well as practically, and are abundantly illustrated with cases and statistics drawn from all sources, among which those of our countrymen, G. W. Norris and Stephen Smith, are most conspicuous. As we are obliged to pass on to other portions of the volume, we cannot give a better idea at once of the author's mode of applying practice to theory, and of his views in regard to the different methods of treatment, than by quoting from his general remarks in relation to the spontaneous cure of aneurism. After describing the different processes by which aneurisms have been known to become cured, he says :—

“The surgical treatment of aneurism, as far as it is successful and rational, is merely an artificial imitation of these processes. The treatment most in use in the present day, that by compression of the artery above the tumour, has no other aim than to imitate nature in the first of the processes described above, so as to slacken the circulation through the aneurism, and allow the blood in it an opportunity of coagulation. The Hunterian operation has essentially the same object, and, although it accomplishes it in a somewhat different way, and by obliterating a portion of the artery above the tumour, puts a more decided, but at the same time more temporary check on the current of blood. The cure by flexion (Mr. Hart's method), aims at combining the first process with the second, in which the aneurism is compressed by the parts around it, and itself (perhaps) compresses the vessel. Mr. Fergusson's plan of manipulation, or crushing, is derived from observation of cases in which the natural cure was effected, or attempted, by the impaction of a clot in the artery leaving the sac. Brasdor's method, so far as it is justifiable at all in practice, *i. e.*, with the modifications hereafter to be described, is identical with this in its object, and rests upon the same pathological basis. Direct pressure appears to cure aneurism usually by displacing portions of the clot, and may, perhaps, sometimes act by setting up inflammation in the sack or parts around it, which leads to coagulation. Finally, the old method, by opening the sac and tying both ends of the artery, bears the strongest analogy to the cure by suppuration, and is, in fact, a kind of excision of the tumour.”

“The methods of spontaneous cure have been dwelt upon at this length with the view of impressing upon the mind of the reader that all successful plans of treatment are successful from being imitations (whether designed or fortuitous) of these natural processes, in the hope that this fact may lead practitioners to a more careful study of the workings of nature in this particular, and the conditions under which she works. Such a study carried on by various observers, could hardly fail to be fruitful in results which would lead to the preservation of numerous lives that would be sacrificed to the idea that internal aneurism is a disease almost necessarily fatal. What else is it than the careful study of the natural process of cure that led Hunter to his brilliant and daring proposal of tying the artery away from the seat of the disease? What else led the Irish surgeons to see that compression, in order to imitate nature, need not suspend the circulation entirely, need not even act continuously; and thus to substitute for the intolerable torture inflicted by the old plan of compression, a treatment which, in ordinary cases, is harmless, and, in a few, absolutely painless? Let us remember how comparatively short a time it is since one of the most celebrated surgeons of his time (Pott, *Chir. Works*, vol. iii. p. 220), announced his preference for amputation over all other methods of treating popliteal aneurism. Let us not forget that one of our most justly valued living authors on this subject (Hodgson, *Dis. of Arteries*, p. 190), was so satisfied with the advance which had been made at the time he was then writing, as to express his opinion that ‘the improvements that have been effected in the mode of applying the ligature to arteries, have brought the surgical treatment of aneurism to a degree of perfection which leaves but little room for advancement.’ Nor was such an appreciation of modern surgery at all exaggerated or unreasonable to those who looked at it as Mr. Hodgson did, by comparison with the mortality after the old operation. In our times surgery has made such rapid advances, that the mor-



tality, which under the system praised by Mr. Hodgson, must have amounted to a large percentage of those operated on, is now very much reduced by the invention of instrumental compression, and even this will, no doubt, soon be further reduced by the more frequent use of flexion and digital pressure. So may it be in medical practice. At the present day, it is hardly too much to say that a patient with internal aneurism is condemned to death as certainly as one with external aneurism used to be to amputation. A century hence we may hope our descendants will have as solid reason to boast of their improvement upon the science of Watson and Latham, as we have to congratulate ourselves on our advance upon the doctrines of Pott." (pp. 371—373.)

Under the head of organs of locomotion and innervation we have a short but sufficiently full article on affections of the muscular system, prepared by Mr. George Tatum, Surgeon to St. George's Hospital; a concise and comprehensive practical chapter on orthopædic surgery, illustrated with woodcuts and very useful, by Dr. Little; another, excellent as usual, and equally valuable, on diseases of the bones, by the editor, Mr. Holmes; a short but clear and comparatively full one on diseases of the joints, by Mr. A. A. Johnson, late Surgeon to the Hospital for Sick Children; a careful summary on excision of bones and joints, by Mr. Holmes; an interesting paper on diseases of the spine, including the various attendant and consecutive abscesses, by Mr. A. Shaw, Surgeon to Middlesex Hospital; and a brief but characteristic and able review of diseases arising from injury or other lesion of the nerves, by Dr. Brown-Séquard. The volume terminates with an interesting essay on diseases of the tongue, by Mr. Holmes Coote.

Each of these papers presents more or less evidence of careful study as well as practical familiarity with its subject; all are well brought up in the observations of the day, and are enriched throughout with illustrative cases. The article on orthopædic surgery is particularly interesting in its pathology and in the simplicity and practical good sense of its various directions, which are, by the by, especially authoritative as coming from one of the first of British orthopædists. In the essay on diseases of the bones, Mr. Holmes treats at length of simple inflammation and its consequences; osteitis, diffuse periostitis, osteomyelitis, chronic abscess, caries and necrosis; constitutional disorders, such as scrofula, syphilis, rheumatic and gouty affections, mollities ossium, cancer, pulsatile tumours, and cancerous ulceration; non-malignant tumours, enchondroma, exostosis, diffused bony or innocent ostoid tumours, serous and sanguinous cystic tumours, fibrous and fibro-cystic tumours and entozoa; hypertrophy and atrophy; and spontaneous fracture.

Among these topics diffuse periostitis, osteomyelitis, chronic abscess, and scrofula in bone, appear to be most thoroughly considered by Mr. Holmes. The first two are well known to have attracted increasing attention for some time past; and the notices of them in this volume, as very painful and often dangerous disorders, will reward a careful study.

In his paper on the affections of the joints, Mr. Johnson treats first of diseases common to all the joints, and secondly of diseases of individual joints. In the first part the diseases of the synovial membranes are first considered, next those of the articular extremities of the bones, of the articular cartilages, and of other tissues in and around the joints; ankylosis; articular neuralgia; articular hysteria; wounds of joints. Part Second includes strumous disease of the hip; morbus coxæ senilis; neuralgia of the hip; diseases of the pubic and sacro-iliac joints; of the knee; of the bursæ of all the different articulations.

These various morbid conditions are particularly well described and explained, under the light of personal experience and of the most recent views

and observations; but the details of treatment, especially the mechanical portion of the treatment, are scarcely as full and precise as they might have been with advantage, and as they are generally found to be in the different papers of the series.

We have in the paper on excision of the joints a cautious but intelligent and liberal summary of the most important points connected with the question and mode of performing these formidable operations. For the history of excisions, Mr. Holmes refers in a very complimentary manner, to the excellent and elaborate monograph of our countryman, Dr. R. M. Hodges, of Boston, Mass., and quotes from its pages repeatedly in the course of his paper.

Starting with the admission that a large amount of success has attended the attempt to preserve limbs by the removal only of the diseased portions of the bone, and stating his acceptance of the general rule that a large or important joint ought not to be excised while any reasonable prospect exists of a cure without operation, he thinks that a surgeon may very reasonably propose to cut short the disease by removing smaller bones, externally diseased, and easily removable, "while yet he may allow that cure is not hopeless," under favourable circumstances. He has often noted excellent results from the excision of bones of the tarsus and metatarsus, which proved the superiority of such treatment to that of waiting for a cure, especially in children, whose restlessness renders confinement less likely to be borne. He does not advocate such operations in the hand and wrist, on account of the danger to the tendons in operations, and consequent loss of motion, which would not be likely to occur from the ordinary inflammation. The question between excision and amputation is far more frequently perplexing to the surgeon, in Mr. Holmes' opinion, than that between excision and the expectant treatment, except, perhaps, in cases of disease of the hip-joint. On this latter question he presents a careful summary of the general indications for one operation or the other, under four heads, as follows: 1, the situation and function of the bone or joint to be excised; 2, the state of the patient as to general health, constitutional affection, and age; 3, the nature and extent of the disease; 4, various extraneous circumstances. These general indications for a choice of operation are followed by some general observations on the operations themselves, and then by the account of excisions in particular.

The paper of Dr. Brown-Séquard will attract attention as a condensed and lucid exposition of a very important series of morbid phenomena, by one who is probably more competent to discuss them than any other living writer—the "*remote, indirect, or reflex*" effects of irritation of nerves. It is particularly interesting to us at the present time, when illustrative cases are accumulating in our military hospitals, and present the largest field of observation. He reminds us that—

"Hardly is there any affection that cannot be considered as having sometimes been produced by a reflex action, the cause of which is an injury, a disease, or at least an irritation of a nerve. If, instead of confining myself to the lesions of trunks and branches of nerves, I intended to describe the effects of irritation of the ramifications of nerves in the skin or in the mucous membranes, I could easily prove that most of the inflammations of the various thoracic or abdominal viscera take place through a reflex action, the starting point of which is some irritation, by cold, of peripheric, sensitive, or centripetal nerve-fibres. I will not say more here about this influence of cold, as my purpose, as already stated, is to give an outline of the reflex effects of injuries or diseases of other parts of nerves than the network of their terminal ramifications.



"Of the various reflex effects of irritation of centripetal nerves, the following are the principal, of which I propose to speak successively: *epilepsy, tetanus, hysteria, chorea*, and other *convulsive affections, paralysis agitans, paralysis of various kinds (hemiplegia, local paralysis, &c.), amaurosis, anæsthesia, insanity, delirium, coma, neuralgia*, and other *painful affections, inflammation, atrophy, and other morbid alterations of nutrition and secretion*. After having mentioned clear and positive facts, showing that all these affections may be caused by an injury to, or a disease of, a nerve, I will briefly give the rules concerning the diagnosis and treatment of injuries and diseases of nerves. This essay will, therefore, consist of two parts; the first, relating to facts showing the reflex effects of irritation of centripetal nerves; the second, the principal features and rules of diagnosis, and treatment of diseases and injuries of branches and trunks of nerves." (p. 877.)

A very large number of curious facts are cited from various authorities in illustration and support of the views of reflex action described in the first part. In the second part, an outline of the means of diagnosis and the rules of treatment is given in a very few words, but quite sufficiently for practical purposes.

The cases occurring among our wounded soldiers of lesion of the nerves, especially from gunshot wounds, are already so numerous that we hope to see these postulates of Brown-Séquard thoroughly tested, if not confirmed, by the experience of the war, and should therefore be glad to see his important chapter separately and widely circulated in the United States.

We are unable to accompany our authors any further in their interesting essays, and are obliged to leave them and the remainder of their volume without further discussion of its very useful matter. We cannot pretend to present more than a very superficial glimpse of its character and actual contents. There is so much that will attract the surgical student and practitioner, and especially the hospital surgeon, that there can be no fear of the entire success of the "system" in the hands of every practical reader; and we sincerely trust that a sufficient number of copies may be brought into this country to reach some portion of the crowds of really able men, whom our military service is rapidly developing into veterans, expert in the management of the most important forms of surgical disease and injury. With such opportunities and such an example and monitor before them, in the work of men not older and perhaps less experienced than themselves, we may hope for a material advance in the surgical teaching of this country. We shall certainly look for still greater strides than have yet been taken in the actual practice of surgery, notwithstanding all that has been done for the progress of the art and science within the last half century on both sides of the Atlantic.

E. H.



## BIBLIOGRAPHICAL NOTICES.

ART. XVIII.—*Obstetrics: The Science and the Art.* By CHARLES D. MEIGS, M. D., etc. etc. Fourth Edition, revised. With one hundred and twenty-nine illustrations. 8vo. pp. 730. Philadelphia, 1863. Blanchard & Lea.

THE present edition of Dr. Meigs' well-known treatise on obstetrics exhibits, throughout every chapter and section, the marks of the careful revision to which the work has been subjected by the author, and the very decided improvement it has undergone by reason, as well of omissions from the text as of additions to it. The work, notwithstanding its blemishes, which, though prominent, are but few in number, and far outnumbered by its unquestioned excellencies, forms, beyond doubt, one of our very best treatises on the science and the art of midwifery, whether regarded in the character of a guide for the student, or as a counsellor in the hour of need to the actively engaged practitioner. In respect to everything embraced within the scope of obstetrical practice, in the strict sense of the term, we know of no work from which more sound, clear and fuller instruction is to be derived than from the one before us.

We have no intention to enter into a formal criticism of the treatise. Its general scope and peculiar characteristics have, by this time, become pretty well known to the medical profession, in this country at least, of whom the almost unanimous approval has been conceded to the work as an exponent of the science and the art of obstetrics. All, therefore, that would seem to be called for, is a brief notice of the additions and improvements by which this fourth edition is distinguished from those which preceded. We shall merely refer to one or two points in the teachings of the author to which our attention has been attracted, as well from their actual importance and the weight which must necessarily be attached by the junior members of the profession to the views held in respect to them by one having the authority of Dr. Meigs as an expounder and practitioner of obstetrics.

In respect to the use of anæsthetics in midwifery, Dr. Meigs expresses his opposition as strongly in the present as he had in the former editions of his treatise. Notwithstanding he is willing to admit that there may occur some instances in which the parturient woman will be benefited by the use of ether employed as an anæsthetic, he contends that such instances must be extremely rare; while, on the other hand, the mischiefs, he contends, arising from the lavish and indiscriminate employment of anæsthetic agents, so strongly tempting as it is, are many and of a very serious character.

In the general run of cases of natural and ordinary labour we feel well persuaded that the resort to any anæsthetic merely to get rid of pain is entirely unjustifiable. In many cases, however, of labour where manual or instrumental interference is demanded, or in cases in which there is an abnormal amount of pain present, or when the labour is rendered protracted from a rigid condition of the os uteri, vagina, or perineum; as well, also, in cases of puerperal eclampsia unattended with cerebral congestion, and in other contingencies occurring during labour, which it is not necessary to here enumerate, we have the concurrent testimony of the most distinguished and authoritative obstetricians, that the employment of anæsthetics, especially pure sulphuric ether, will be productive of highly beneficial effects, and when conducted with a due amount of caution is attended with but slight danger.

The section devoted to the consideration of placenta prævia has been entirely recast in the present edition. The one leading indication laid down by Dr. Meigs in all cases of placental presentation is, as soon as the os uteri has be-

come sufficiently dilatable, to turn the child and deliver by the feet. The views of Drs. Radford and Simpson in respect to the treatment of placenta prævia, the arguments advanced by them in its support, and their experience in proof of its superior efficacy, receive not the slightest favour at the hands of Dr. Meigs.

"Let no man," the latter remarks, "suppose me to be so bold, not to say so impudent, as to call in question the perfect good faith with which Messrs. Radford, Simpson, and others, have stated their experience; it will ever be far from me to do so, though I can find in the mystery of their success no other solution than the errors of their observations, since I know—not believe—that a child deprived for many consecutive hours of all its sources of aëration must, of necessity die, and since I know equally well that when the os is not very greatly dilated and practicable for speedy delivery no man can, or will ever be able to detach an unassailable implanted placenta—unassailable, I say, because it lies far beyond his finger points. There ought to be a public recantation made of so considerable and so mischievous an error—an error that assuredly will not long withstand the light of the nineteenth century."

We would recommend to the young practitioner a careful study of the entire section devoted to the consideration of placenta prævia and its treatment. It will be found particularly instructive. The views of Dr. Meigs will, we believe, be endorsed by the great majority of well-instructed and experienced obstetricians.

Whilst pointing out the very serious consequences which usually result from the occurrence of smallpox during pregnancy, especially towards its latter period, Dr. Meigs urges upon his readers not only the immense importance of sedulously guarding the pregnant female from exposure to the contagion of variola, but of abstaining under every and all circumstances from subjecting her to vaccination.

"The shocking spectacles of distress that I have witnessed from the vaccination of pregnant females have so impressed my mind," says Dr. Meigs, "with the enormity of the imprudence, that nothing, I think, could tempt me to commit it myself. The most furious phlebitis, which is endangitis, and which becomes pyæmic fever, is one of the consequences likely to result from every true or spurious vaccination of a pregnant female. I am firmly convinced that it is far better for the physician, during an epidemic of smallpox, to leave his pregnant patient to the chance of a natural infection, than to certainly bring her within the range of its virulent power by a vaccine inoculation, which is but a variolous inoculation modified by the generical force of an inferior zoological genus. If I venture to put forth such opinions as the above, it is hardly incumbent upon me further to protest against the temerity of those who, during the existence of a smallpox epidemic, recommend, and even proffer, what is called *revaccination* to those who, having been already vaccinated, might be held to be protected; I mean to pregnant women. I have seen pregnant women very nigh to term, unnecessarily revaccinated, with consequences so terrific that I think I would not, for a thousand golden crowns, either vaccinate or revaccinate any woman knowing her to be pregnant."

We candidly confess that the foregoing extract embraces statements which to us are as novel as they are adverse to all our experience. We have had frequent occasion to vaccinate females during pregnancy, and still more frequent occasion to revaccinate such individuals, but in no instance have we known any bad symptom or the slightest evil consequence follow the operation. We should not, certainly, make choice of the period of pregnancy to either vaccinate or revaccinate our female patients; but in any instance where there was imminent danger of a pregnant woman being attacked by smallpox, in consequence especially of its prevalence as an epidemic in her immediate neighbourhood, we should consider ourselves warranted in securing to her without delay the protection afforded by the lesser evil, vaccination—if it can, indeed, be considered in any sense an evil—against the much to be dreaded because often deadly effects of the variolous poison. Nay, we should consider ourselves derelict in the duty we owed to our pregnant patient if we did not, under the circumstances referred to, urge her to submit to vaccination, even though in early life it had been already performed in her case.



The curious argument by which Dr. Meigs attempts to sustain his opposition to vaccination during pregnancy, will hold equally good against the safety of vaccination under many other conditions. Thus, if the argument be at all valid, it should deter us from resorting to vaccination in the early stages of life, and in the midst of those severe epidemics it has been our ill fortune more than once to witness, when even those are no longer safe who, at other times, were found proof against infection, though they had been exposed fully to the action of the viruluous poison.

The peculiar views advanced many years ago by Dr. Meigs in respect to the pathology and treatment of what he denominates "child-bed fever," are reiterated in the volume before us, unmodified in the slightest degree in any of their features by the vast body of facts in elucidation of the subject that has of late years been accumulated by medical observers everywhere. These facts are as completely ignored by our author as though they had no existence.

A correct scientific account of the so-called puerperal, or child-bed fever, is still to be written. Whether we have as yet in our possession all the materials requisite for the preparation of such an account may, with good reason, be doubted. But upon a careful collation and analysis of all the recently recorded facts, observations and researches directly bearing upon the subject, every unprejudiced inquirer will be obliged, we think, to admit that, under the term "puerperal fever," meaning thereby to indicate a single special fever incident to the puerperal state, simply varying in intensity in different cases and in its different visitations, there has been in fact embraced various morbid conditions resulting from very different causes, attended by very different phenomena, pursuing a very different march, presenting very distinct pathological lesions, and requiring very dissimilar courses of treatment. And while it is found that the so-called puerperal or child-bed fever is neither a single nor specific disease, it will as clearly appear that the several morbid conditions which have thus been named and classed, are not confined to the puerperal period, but may occur to woman at any period of her life, and in the male equally as the female.

Dr. Meigs will find few among his contemporaries in the profession, either at home or abroad, willing to endorse his one-sided and exclusive teachings on the subject of puerperal fever, or the treatment to which he believes his convictions as to the true pathology of the disease necessarily lead. They will soon become—they are even so now—to a great extent exclusively his own.

D. F. C.

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ART. XIX.—*Bulletin of the New York Academy of Medicine, from January, 1860, to October, 1862. Instituted 1847. Vol. I., 8vo. pp. 588, exclusive of an Appendix of 6 pages. Printed for the Academy, New York, 1862.*

THE official report, presented in the volume before us, of the proceedings of the New York Academy of Medicine for the last three years, proves very clearly the active working character of that institution. Besides this Bulletin, the Academy publish also from time to time a volume of Transactions, the contents of which are distinct from those contained in the Bulletin.

The many valuable communications on medical subjects, most generally of the deepest interest, read before the Academy by its members, and the animated discussions to which they almost invariably give rise, cannot fail to render its sessions always in an eminent degree instructive.

It is the free interchange of experience among physicians daily engaged in the study of disease, in all its varied forms, amid fields peculiarly adapted for the acquisition of medical knowledge and skill, and in the careful comparison of the deductions obtained by each from their individual observations, that correct views are to be acquired in respect to the nature of the several morbid conditions to which the human organism is liable—the phenomena by which the presence of these conditions, respectively, is indicated—the circumstances under which



they are most liable to occur, and the treatment best adapted to conduct them to a favourable termination.

The closest attention to the papers and discussions elicited at the meetings of the best conducted medical association, it is very evident cannot supply the place of the knowledge to be derived from the study of approved professional writings; such attention is to be ranked, nevertheless, among the best exponents of the nature and bearing of the truths set forth by the master minds of our profession, whether past or present, and of imparting these to the busy practitioners who, unfortunately, have little time, and some, we fear, less inclination for the study of medical works, whether new or old.

The entire contents of the volume before us are both interesting and instructive. As the more prominent among the communications and discussions set forth in it, we would enumerate those on diphtheria and croup, comprising an inquiry into the value of tracheotomy in the treatment of the latter; on the use of mechanical means in the treatment of uterine diseases; on tetanus; on the treatment of morbus coxarius; and of fractures of the femur; on morbid insanity in relation to criminal acts; on the use of anæsthetics in midwifery; on cretinism; on pelvic hæmatocele; on epilepsy; on inversion of the uterus; on vaginismus; on amputation of the cervix uteri, and on albuminuria.

The communications made to the Academy in reference to the subjects just enumerated are, in general, well drawn up, and in more than one of them hints are presented of a highly original and suggestive character. Several of the communications are, perhaps, too elaborate, if we view them as merely intended to form the foundation for a discussion, by drawing out the views and experience of the members of the Academy, in respect to the subjects set forth in them, while they are seldom sufficiently full to enable them to lay claim to the character of finished monographs. Nevertheless, nearly every communication made to the Academy appears to have excited discussion, more or less animated and prolonged. This is to be ascribed, in great measure, to the very sensible arrangement of the Academy, by which the discussion of any given topic is not confined to a single session, nor prohibited from being revived at any subsequent period, should any member desire to express his views in relation thereto.

It is not our intention to present an analysis of the several papers which make up the contents of the volume before us, or to criticize the manner in which their respective subjects are treated, or the nature of the views set forth in each. All of these papers had been already some time before the public in another form, previously to their being gathered together in a volume; and, with the particular questions discussed in them, and with the nature of the conclusions arrived at by their authors, the medical public are sufficiently familiar. The Bulletin is nevertheless well worthy of a place in the library of every physician, by no one of whom can its pages be consulted without profit.

D. F. C.

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ART. XX.—*Registration Reports to the Legislature of Vermont, comprising the Registry and Returns of Births, Marriages, and Deaths, in the State, for the Years 1857, 1858, 1859, respectively.* Prepared under the Direction of BENJAMIN W. DEAN, Secretary of State. 8vo. pp. 118, 116, 119.

THE vital statistics of a people have far higher uses than simply to minister to a spirit of mere curiosity, however laudable such curiosity may be; they are capable of being directed to the attainment of results, by which may be improved alike the comfort, the happiness, and the prosperity of every individual, even the humblest, in the community, the vital movement of which they present. Towards a full and correct appreciation of the means best adapted to secure to a people the highest amount of health, vigour, and longevity, and to insure their advancement in prosperity, civilization, and happiness, it is generally conceded, that a knowledge of the circumstances connected with the three important eras of existence—birth, marriage, and death—affords

a necessary basis, inasmuch as with these eras are most intimately connected the physical, moral, and civil condition of the human race. Even though the statistics be confined to a mere exposition of the comparative mortality of different communities, and of the different classes of which these communities are composed—arising from difference of sex or age, or from difference of occupation or pecuniary position—they become of sufficient importance to warrant all the labour and expense incident to their collection and registration. By the lights furnished by them, we may remark—following the train of thought, if not the exact phraseology of another—the governing powers and enlightened statesmen become better prepared to discharge their high and responsible duties to the public, by the more exact knowledge furnished them, of the physical and vital powers, the possessions, and the resources of their constituents. The judiciary are enabled to dispense more equal justice in the settlement of life annuities, reversions, entailments, dower, pensions, and similar questions, by being rendered more intimately acquainted with the laws which govern the probabilities of living—the probable duration of life—within a given jurisdiction. Those interested in life insurance, either as members of legalized organizations, or as policy holders—in which so large an amount of capital is now invested by our citizens of nearly every class—are benefited, by being furnished with a correct exhibit of the relation which the laws of mortality, in respect to any given place or community, create between the insurer and insured, and the relative interests of the two parties thence resulting. While the philanthropist and the sanitarian will be enabled to give more definitiveness and more efficiency to their labours, by knowing where, in what manner, and in which direction, they must direct their efforts, to obtain from them the good designed; a knowledge they can acquire only by an acquaintance with the laws which govern the issues of life and death, as developed by a sufficiently extended series of vital statistics.

In this country, the subject of vital statistics has only of late years attracted the attention of the State and municipal authorities; and only in a few of the States have any measures been taken to secure a full and accurate registration of the births, marriages, and deaths, which annually take place. Even the medical profession have not been as active in forwarding, by their aid and influence, this important movement, as would reasonably have been expected of them, from their presumed acquaintance with the benefits to result from it to the community at large, and the valuable materials it is calculated to furnish to every medical practitioner, in his study of the etiology and prophylaxis of disease.

Every year, however, the value of registration is becoming more evident, and the impediments which have heretofore stood in the way of the inauguration of a correct and efficient system of registration in most, at least, of our larger cities and towns, are rapidly disappearing.

The first object to be obtained by a system of registration, is to amass authentic facts; the legitimate deductions from these will follow afterwards. The greater the number of facts accumulated, and the more in detail they are given, the safer, more comprehensive, and conclusive, and, consequently, the more satisfactory and useful, it must be evident, will be the deductions to which they lead.

To take the most striking and familiar example of the beneficial working of a carefully collected and properly arranged series of vital statistics of any given community. When, by such a series, it shall be shown, that the common mortality, or that from any particular malady, exceeds in some one locality or neighbourhood, or some one class of citizens, whose pursuits and general habits of life are similar, that in other localities or classes of the community; a careful investigation of all the circumstances in which the sickly locality or neighbourhood, or class of citizens, differs from those in the enjoyment of superior health, will very generally furnish a clue to the nature of the causes by which their unhealthy condition is produced, and to the means best adapted for the abatement or entire extinction of such morbid agencies. This, which is a very important and comprehensible example of the good resulting from registration, as the basis of a system of vital statistics, is by no means the only one that could be adduced. It is adapted to work out other results, equally important and beneficial, and which could not be obtained excepting by it.



The several annual reports of the registration of births, marriages, and deaths which occurred in the State of Vermont, from 1857, when the law providing for such registration went first into operation, to 1859, inclusive, present a very fair exposition of the vital movement of the different portions of the State. The statistics presented in the three reports are well arranged, and although still deficient in completeness and fulness of detail, there is exhibited by each succeeding report evidence of a decided improvement in both respects.

It would be a pleasing and instructive task to examine in detail the leading facts, in each branch of statistics, developed by the reports before us, and compare them with those developed by the registration reports for other portions of the United States. To do this, however, in a satisfactory manner, would unreasonably swell the present notice; while with the isolated and imperfect data at present in our possession, it would scarcely warrant the amount of labour necessary for the accomplishment of the task. We can afford space sufficient only for the notice of a few leading particulars.

The number of births reported for the year 1857 was 6412; namely, 3283 males, 3071 females; 58 sex not stated. Of these children, 4164 of the parents were Americans, 1397 foreigners, and of 851, the parentage was unknown. Excess of births over deaths, 2900.

In 1858, 6477 births are reported: males, 3294; females, 3142. In 41 cases the sex is not stated. The parentage was American in 4359 cases; foreign in 1583; and unknown in 535. Excess of births over deaths, 2749.

In 1859, 6545 births were reported: males 3351; females, 3155; in 39 cases the sex is not given. The parentage was American in 4523 cases; foreign in 1599, and unknown in 423. Excess of births over deaths, 2689.

The number of plurality births which occurred throughout the State of Vermont, during 1857, was 92; 52 males and 40 females. One set of triplets is reported to have occurred in the month of September. The three children were all females. Two of them died, one on the seventh, and the other on the thirteenth day. The remaining child was living at the date of the report. In 1858, 148 cases of couplets are reported, and three sets of triplets. The children in the first of these latter were females—all still-born; in the second, there were one male and two females, all of which were living at the date of the report. In the third case, there was one male and two females; the male survived four days, and one of the females five days; the other female was alive at the time of the report. One case of triplets occurred this year among 2132 parturients. In 1859, the number of couplets was 128: 87 males, 41 females; of these, 78 males, 37 females were born alive. The twin cases were as one among every 100 parturients. The greater number of the plurality births occurred this year in the month of November.

By the census of 1857, there was in Vermont 1 birth during 1857 to every 48 persons, and by the registration report, one in every 50. Both calculations are evidently inaccurate.

October was the most fruitful month, and January the least so. During the winter months, there were 1435 births; during the spring, 1574; during the summer, 1686, and during the autumn 1717.

In 1858, December was the most fruitful, October the next, and February the least so. During the first quarter of the year there were 1421 births; during the second, 1578; during the third, 1691; and during the fourth, 1736.

The returns of this year show one birth among every 49 of the population.

In 1859, October was the most fruitful month, and January the least so.

The following are the births in the different quarters of the year, and the different seasons:—

First Quarter,	. . . 1454	Winter	. . . 1441
Second "	. . . 1646	Spring	. . . 1653
Third "	. . . 1715	Summer	. . . 1685
Fourth "	. . . 1700	Autumn	. . . 1736

One birth appears, from the returns of 1859, to have occurred in every 48 of the population. It is very probable, however, that only three-fourths of the



births are registered; in that case there would be one birth to 38 of the population.

In 1857, no illegitimate birth is reported. In 1858, there was one illegitimate birth among every 108 births. In 1859, one illegitimate birth is reported in every 121.

In 1857, 54 cases of still-born children are reported, namely, 26 males, 22 females, and 6 sex unknown. In 1858, 147 cases are reported; 71 males, 50 females; the sex of the remaining 26 not mentioned. In 1859, 167 cases are reported; 80 males, 64 females; and 23 of which the sex is not given.

In examining the mortuary tables embraced in the reports under consideration, we are struck with the number of deaths which they present from diseases of the brain and great nervous centres generally. Thus the deaths from *apoplexy*, in 1857, were 71; in 1858, 49; in 1859, 47—total, 167. From *paralysis*, the deaths were in 1857, 73; in 1858, 89; in 1859, 79—total, 241. From *cephalitis*, the deaths were in 1857, 51; in 1858, 62; in 1859, 42—total, 155. From *diseases of the brain*, in 1857, 61 deaths are reported; in 1858, 48; in 1859, 40—total, 149. From *convulsions*, 66 deaths are reported in 1857; in 1858, 56; in 1859, 49—total, 171. From *hydrocephalus*, the deaths were in 1857, 46; in 1858, 32; in 1859, 51—total, 129. From *epilepsy*, the deaths were in 1857, 8; in 1858, 26; in 1859, 24—total, 58. From *chorea*, six deaths were reported; two in each of the three years 1857, '58, '59. Thus giving, for the three years, a total of 1076 deaths from diseases of the nervous centres, in a population of about 355,000. Upon a more close analysis of the reports before us, there is no doubt but that the above total would be still further increased.

The diseases of the *respiratory organs* give for the three years a total of deaths, amounting to 3363; namely—*Pneumonia*: in 1857, 163; in 1858, 169; in 1859, 161—total, 493. *Diseases of lungs*: in 1857, 56; in 1858, 53; in 1859, 67—total, 176. *Abscess of lung*: in 1857, 2; in 1859, 1—total, 3. *Bronchitis*: in 1857, 4; in 1858, 12; in 1859, 6—total, 20. *Influenza*: in 1857, 25; in 1858, 3; in 1859, 4—total, 32. *Asthma*: in 1857, 5; in 1858, 3; in 1859, 1—total, 9. *Hæmoptysis*: in 1858, 2; in 1859, 5—total, 7. *Croup*: in 1857, 73; in 1858, 54; in 1852, 64—total, 191. *Whooping cough*: in 1857, 26; in 1858, 34; in 1859, 57—total, 117. *Pleurisy*: in 1857, 10; in 1858, 7; in 1859, 9—total, 26. *Hydrothorax*: in 1857, 9; in 1858, 8; in 1859, 15—total, 32. *Consumption*: in 1857, 785; in 1858, 738; in 1859, 734—total, 2257. Giving, as above stated, for three years, a total mortality from diseases of the respiratory organs of 3363, which is less, however, than what actually occurred.

The entire mortality from *fevers* during the three years amounted to 1244; namely—from *typhoid fever*: in 1857, 88; in 1858, 116; in 1859, 214—total, 418. From *typhus*: in 1857, 21; in 1858, 38; in 1859, 23—total, 82. *Scarlet*: in 1857, 123; in 1858, 275; in 1859, 263—total, 661. From all other fevers during the three years, 83 deaths are reported.

The entire number of deaths from *cancer* during the three years was 214; namely—in 1857, 73; in 1858, 63; in 1859, 78.

The deaths from *Dropsy* amounted to 293; namely—in 1857, 109; in 1858, 93; in 1859, 91.

The deaths from *Dysentery* amounted to 247; namely—in 1857, 71; in 1858, 97; in 1859, 79.

The deaths from *Measles* amounted to 59; namely—in 1857, 13; in 1858, 17; in 1859, 29.

The deaths from *Rheumatism* amounted to 40; namely—in 1857, 13; in 1858, 15; in 1859, 12.

The deaths from *Diseases of the heart* amounted to 393; namely—in 1857, 120; in 1858, 141; in 1859, 132.

The deaths reported as of the *puerperal state* amounted to 99; namely—in 1857, 26; in 1858, 39; in 1859, 34.

In 1858, 14 deaths were reported from *diphtheria*, and in 1859, 60—total, 74.

From *delirium tremens and intemperance* 21 deaths are reported: 3 in 1857; 3 in 1858; 15 in 1859.

From *Erysipelas* 106 deaths are reported: 26 in 1857; 40 in 1858; 40 in 1859.

Twenty-four cases of *Suicide* are reported : in 1857, 9; in 1858, 4; in 1859, 11. To *old age* 756 cases of death are referred : 309 in 1857; 232 in 1858; 215 in 1859. The patients were in the greater number of cases over eighty years of age.

We have referred to the foregoing items in the mortuary registers recorded in the reports before us from the fact, that if the registration has been accurately made, the amount of mortality from some, at least, of the diseases indicated, when compared with the population of Vermont, will be found unusually large.

Taking the reports for the three years, 1857, '58, '59, and comparing them with each other, it will be found that in Vermont, more than *one-seventh* of the deaths of which the ages are given, were of infants under *one year* of age; nearly *one-fourth* were of those under *three years*, and about *one-third* in children under *fifteen years* of age.

"It will be recollected," we quote the words of the report for 1857, "that the number of males exceeded the number of females born, hence an excess of male mortality in infancy might be expected; but the excess of male births was less than *three per cent.*, while the excess of male mortality under one year is *six per cent.* Between the ages of one and ten, also, more boys than girls die. In youth and adult age the heaviest mortality falls upon the weaker sex; while in old age, including all over sixty, the scale again turns against the males. This agrees with the facts developed by registration reports in other parts of the world. In, however, Massachusetts, Kentucky, South Carolina; in England, France, Austria, in fact in *every State and Country*, whose reports have been examined, with reference to this point, the excess of male mortality, at the extremes of life, more than counterbalances the excess of female mortality of middle life, giving universally, an excess of male mortality, when all ages are included. In Vermont, on the contrary, the excess of female mortality between the ages of ten and sixty, very much overbalances the excess of male mortality at all other ages, giving an absolute excess of female mortality when all ages are included. If this has been so for years past, it will readily account for the excess of male population, while the New England States generally possess an excess of female population. Of each 100 deaths, of those between the ages of ten and sixty, 38 were males, and 62 were females, making a difference of 24 per cent. against the females. Of each 100 deaths at all other ages, 52 were males, and 48 females, a difference of only 4 per cent. against the males. In this the difference in the numbers of the two sexes living is not taken into the account. When it is considered that the male population preponderates, the difference is found to be still greater against the females. While it is usually the fact that, during the term of *active* life the weaker sex are subject to a heavier mortality, yet it does not readily appear why the burden should be so much heavier in this State than elsewhere. During the development of womanhood, and through the procreative and climacteric periods, the female system is everywhere subject to increased liability to disease and death. In this State, this liability to disease and death, compared with that of males at the same age, is very wonderfully increased, particularly during the first period, that of development of womanhood. Of 1000 deaths of persons between the ages of 15 and 20 years, 654 were females, while only 346 were males, being a difference of nearly 31 per cent. against the females, and this notwithstanding there were actually more males than females living between those ages. Taking the living population into the account, it appears that one death occurred among 161 females, between 15 and 20 years of age, while only one among 318 males took place, being .6199 per cent. for females, and .3146 per cent. for males, or almost two females, exactly, to one male."

It appears, however, that this excess of female mortality is not equally distributed through the State, some of the counties showing an excess of male mortality.

In the second report the same excess in the mortality among females is noticed to have occurred. The deaths among the males were only one in 96, or 1.04 per cent., while among females it was one in every 81, or 1.23 per cent.



"Among children," it is remarked, "boys possess the least amount of vital stamina, and this is the more shown when the still-born children are taken into the account. There were 1,117 deaths of boys to every 1000 of girls. But during the period of development of womanhood, and through the procreative and climacteric periods, females seem to be by far the weaker sex. In old age there seems to be but little difference in the vital powers of the sexes, since this year, 1858, the balance is slightly against the females, while last year it was very slightly against the males. As remarked in the first report, in middle life females are everywhere subject to greater liability to disease and death than males; while in this State this liability compared with that of the males at the same age, is wonderfully increased, particularly during the period of development of womanhood. It completely overbalances the excess of male mortality at the extremes of life, producing an absolute excess of female mortality in this State notwithstanding the excess of male population. There is scarcely another State or Country in the world where the male mortality does not preponderate.

*What causes are in operation in Vermont to produce this comparatively large female mortality?"*

The same astonishing fact is developed by the report for 1859. The deaths this year were one in 89 among the males, and one in 80 among females. In England, where the ages of the population are so nearly like our own, if 100 females die out of a given number of females in a given time, out of an equal number of males, 107 males die in the same time. In Vermont, if out of a certain number of females, 100 die in a given time; out of the same number of males only 88 die in the same time, taking the ratio as given by the returns for 1859. In England and America, we may remark, the ratio of the sexes at birth range from 104 to 109 boys to each 100 girls. In Vermont nearly the same ratio obtains, it being 106 boys to 100 girls.

In two of the counties, Essex and Orleans, the percentage of deaths is greater for males than for females; while in Addison county, the percentage is the same for both sexes.

In 1857 the greatest number of deaths occurred in October, the least in February. The number of deaths were great in March. June appears to be a healthy month, giving a less number of deaths than any other, excepting February.

Seven persons over 100 years of age died this year.

In 1858 the greatest number of deaths occurred within the first quarter of the year, whereas in 1857 the least number occurred then, and the greatest number in the last quarter. Combining the two years, we find that the greatest mortality took place during the middle six months, including the winter of 1857-8, nearly one-third of the deaths having occurred during the latter season. The winter, it is remarked, was not, perhaps, particularly unhealthy, but *only more so than the other portions of the two years.*

March appears to have been the most fatal month, and November the least so.

No case of death in any one at or over 100 years of age is recorded. Twelve deaths were returned in persons over 95.

September was the most destructive to life during 1859. January was the least fatal. In Vermont, March and November are equal in their range of mortality, next to these is September; August ranks the fifth among the months in reference to extent of mortality.

Twenty-one deaths are registered in 1859 as having occurred in persons at and over 95 years of age. The oldest of these were, one over 99 years, and one at 100; two turned of 100, and one at 107. D. F. C.



ART. XXI.—*The Principles and Practice of Obstetrics.* By GUNNING S. BEDFORD, A. M., M. D., *Professor of Obstetrics, the Diseases of Women and Children, and Clinical Obstetrics in the University of New York, etc. etc.* Third edition, carefully revised and enlarged. New York, 1863. 8vo. pp. 743. William Wood & Co.

THE volume before us claims to be a third edition, revised and enlarged, of Dr. Bedford's lectures on the principles and practice of obstetrics. After a very careful examination of it, however, we have not been able to detect any material difference between it and the preceding editions. It appears to us to be simply a reprint of those, with an additional chapter (Lecture xlv.) on the pathology and treatment of phlegmasia dolens, of which disease in the previous editions no account had been given.

There seems to us to be, in this practice of announcing as a new edition each successive impression of a work, however small in number, taken from the same stereotype plates, an appearance of deception which is to be deprecated. Such a course may be required to bolster up the character of some work of doubtful value, by leading the public to believe that the demand for it has been greater than it actually was. No such deceit, we feel assured, is called for in the case of a professional treatise of the high character of the one before us. The success of such a work as that of Dr. Bedford, it seems to us, may be very confidently trusted to its own merits.

We feel no way inclined to modify in the slightest degree the verdict we gave in favour of these lectures of Dr. Bedford upon their first appearance in print. A more intimate acquaintance with them, acquired in a careful re-examination in the manner in which their author has handled the several questions embraced in his subject, has convinced us of their reliability as a guide to the study of midwifery in all its details, as well from the general accuracy as from the clearness and precision of their teachings.

We cannot, it is true, fully coincide with the lecturer in all his views, theoretical or practical; but the points upon which we differ from him are in the main open questions, in relation to which individual experience and convictions will necessarily lead to differences of opinion, until a more extended and decisive series of observations shall warrant one or other party to dogmatize in respect to them.

D. F. C.

ART. XXII.—*First Outlines of a Dictionary of the Solubility of Chemical Substances.* By FRANK H. STORER. Part I. Cambridge, Mass., Sever & Francis. 8vo. pp. 232.

MR. STORER is well known to chemists by the numerous original investigations which he has made and published, and which have been extensively reprinted in the German, English and French chemical journals. In the present work, he has undertaken to collect and classify all the facts scattered through the vast domain of chemical literature which bear upon the relations that exist between chemical substances and their solvents. The labour requisite for the conscientious performance of such a task has been necessarily immense, and will be fully appreciated by the chemical world.

Mr. Storer takes the term "solubility" in its extended sense, including the reactions of liquids upon solids, gases, and upon other liquids. He also embraces, as far as determined by observers, the influence which one substance in a state of solution exerts upon the subsequent solution of other substances in the same medium. The extent and variety of the information which he has collected on these points, will relieve the chemist from long and troublesome

searches through successive treatises. It will have another still more useful effect. Bringing together the various statements which have been made by different observers, any one consulting Mr. Storer's dictionary is enabled to ascertain whether these statements are concurrent, and therefore probably exact, or discordant, and therefore liable to doubt. In a word, the inquirer has placed before him the best information which has been published on each particular point, and is placed in a position either to conclude that the statements are reliable, or to perceive that he must determine for himself the question which occupies him. Another advantage of this dictionary consists in its bringing together a very complete synonymy, and in glancing over it, one is forcibly struck by the carelessness which has led chemists to use names already pre-occupied, often to a most perplexing extent. For example; there are three different substances to which the name of Camphene has been affixed, all by French chemists, and one with the very similar name of Camphin. The word Benzoin belongs to three substances; and other instances might be cited. Mr. Storer's work might be advantageously consulted by investigators before adopting names for new substances, in order to assure themselves that the proposed word has the requisite novelty.

A dictionary of this sort is so necessary, that, as in many similar cases, when the work is done, we are surprised that the need was not perceived and supplied before. It has been a great mistake in chemical works that too much has been attempted, too wide a scope chosen, so that even with the most herculean efforts, completeness has not been attained. Books have been written, intended to embrace as far as possible, the sum of chemical knowledge, and the result has been, that the first portions have become antiquated before the work was completed. Gmelin's Chemistry, especially the Cavendish Edition, is a truly wonderful work, but it is still unfinished, while the first volume (Physical Chemistry), which appeared in 1848, is quite out of date. Poggendorff's Handwörterbuch has now reached the letter S, and already the first part has had to be completely re-written, to the extent of four large octavos, as a second edition of the first portion of a work still far from complete. And this, although the book is not the production of any single hand, but the result of the coöperation of many labourers in the field. It seems, therefore, desirable that chemical science should be subdivided into as many specialties as possible. In this direction we regard Mr. Storer's publication as a most valuable step. In the present state of the science we want monographs. Some such have been attempted. Rose's works on Analysis were admirable examples. Hoffmann published a monograph on Compound Ammonias, now unfortunately wholly out of print. Hartung-Schwartzkopf has given us a monograph on the organic alkaloids. Others might be cited, and we hope the number will be multiplied.

One pressing need at the present time is a really complete work on qualitative reactions. Rose has done much in this direction, but his book is now far behind the needs of the science of the day, and can only be considered as elementary. He has restricted himself to a limited number of reactions for each substance, selecting of course the most important, and has discussed them in 712 pages of rather large print. A thorough collection of all the known facts would fill two or three times as much space, and be of immense value. It should be subdivided into an organic and an inorganic portion, which might constitute separate works.

The first part of Mr. Storer's work before us contains 232 double column pages of close but clear type, and extends to the word "convolvulinol." We hope the rest of the work may speedily follow. M. C. L.



ART. XXIII.—*Reports of Institutions for the Insane in the British American Provinces:—*

1. *Of the Provincial Lunatic Asylum at Toronto, Canada West, for the years 1853 to 1861, inclusive.*
2. *Of the Provincial Lunatic Asylum of New Brunswick, at St. John, for the years 1858 to 1861, inclusive.*
3. *Of the Provincial Hospital for the Insane, near Halifax, Nova Scotia, for the years 1858, 1860, and 1861.*

THROUGH the polite attention of the superintendents of the public hospitals for the insane in the three British American Provinces, Canada, New Brunswick, and Nova Scotia, we are in possession of most of the annual reports which have issued from those several institutions. As our interest in the insane is not limited by national boundaries, as the superintendents mentioned are members of the American Association, and one of them at least, has contributed liberally to the original matter published in the American Journal of Insanity, as we feel bound especially to chronicle the progress of psychological science upon this continent, and as some of these reports contain matter of general interest, we proceed to pass them under a brief review.

On the 21st of January, 1841, the old gaol, near the centre of the city of Toronto, Canada West, was opened as a temporary receptacle for the insane, where they were not only furnished with the ordinary necessities of an "asylum," but were placed under curative treatment. In the course of a few years, two other buildings within the limits of the city were occupied for the same purpose, and the three were continued in operation until the establishment now known as the "Provincial Lunatic Asylum" was ready for occupation. This was on the 26th of January, 1850.

Patients admitted into the temporary hospitals . . . . .	889
Discharged . . . . .	554
Died . . . . .	211
Transferred, date above-mentioned, to the new hospital . . . . .	112

It has been a principle from the beginning, at Toronto, to discharge no patient uncured. Hence, in the reports, "discharged" implies "cured." According to the above statistics, then, the proportion of cures at these temporary receptacles, all unsuited to their purpose as were the buildings, and unsupplied with the many resources for treatment considered necessary at the present day, was but a fraction less than *sixty-three per cent.*

The report very properly pronounces the figures unreliable, and, as evidence of their character, shows that, in one case, the patient *died in the hospital*, three years and five months after the time of first admission, but, in the course of that period, had been "discharged" (*cured, of course*) *five times*; and in another, the patient, in the course of a few days more than five and a half years, was "discharged" (*cured*) *seven times*, and then, after an absence of only twenty-three days, returned and remained, incurable, until death. "Figures may be used to prove anything," justly saith Dr. Workman, in one of the reports before us.

The Provincial Lunatic Asylum is in the western suburbs of Toronto, near the shore of Lake Ontario, upon which it fronts. It is a large, rectilinear building, six hundred feet in length, and consisting of a central edifice and two opposite wings. The original design included two additional wings, which have never been erected. The internal arrangements, made in conformity with that design, are such that the patients of either sex can be separated into but three classes—one in each story of the wing. This want of proper classification is, and must continue to be, so long as it exists, a great and glaring defect.

During the first year of the operations of the asylum, it was, if we mistake not—there being no statement upon the point in the reports—under the superintendence of Dr. Telfer. For one and a half years afterwards it was under



Dr. Scott, who, upon the 1st of July, 1853, was succeeded by Dr. Joseph Workman, the present incumbent, and the author of all the reports now under review.

We visited the establishment in the summer of 1852, and returned with impressions of cheerless grounds, large original expenditure in the building, enormous halls and corridors, bare walls, scarcity of furniture, incomplete classification, great defect in the means of moral treatment, and the laxity of an undisciplined asylum where we should have seen the regularity and order of a well appointed and vigorously managed hospital.

Dr. Workman, having more time than was at our command, found other imperfections, not the least of which was in the sewerage. Drains had been made beneath the building and a main sewer excavated, twenty-two feet distant from the outer walls; but, by a singular oversight, the two had never been connected. Hence, all the drainage of the building, from the time it was first occupied, had accumulated beneath the basement floor—a mass of filth reeking with noxious effluvia, which penetrated every apartment and seriously affected the health of the inmates. This evil was soon thoroughly corrected.

Evidently bringing to his task a natural taste for the specialty, sound common sense, practical ability, industry, energy of action, the spirit of improvement, and a disposition to make his labours contribute to the advancement of science, the present superintendent has not only become a well-known author upon insanity, but has gradually brought the institution under his charge into a condition in which it may fairly claim to rank among the best upon the continent. In the report for 1855-6, he says, "In point of architectural device, excellence of workmanship, and the general suitableness of its interior arrangements, the Toronto Asylum is inferior to none on this continent." Again, in the report for 1856-7, "An extended and minute examination of nearly all the best asylums in the United States, enables me to state that the sanitary condition of our Provincial Institution for the Insane is not inferior to that of any in America, and is much better than the majority. It is my belief that the chief cause of the comparatively vigorous health of the patients of our asylum, is to be found in the simplicity, and the superior nutritive properties of their diet, as contrasted with the more varied and less digestible fare with which the inmates of American Asylums are indulged." And finally, in the report for 1861: "The institution continues to receive a liberal gratuitous supply of the respectable newspapers of the Province. \* \* \* Our library is pretty well stocked with books suitable to our people. \* \* \* Our corridors and sitting-rooms present, I think, a better and more numerous collection of pictures than any other asylum I have visited. Our shrubberies, flower-beds, and fountains have, in summer, invested the asylum with a pleasing aspect. \* \* \* Musical entertainments, picnics, moderate dancing and occasional holiday festivals combine to enliven, invigorate, or soothe the enfeebled sufferers who come here for renewal of mental and bodily health. It is now understood by candidates for discharge, that they have to attain a certain degree of fatness before they can be set at liberty, and that those who are bad eaters must remain long. Our annual bill for drugs is not formidable."

The reviewer thinks that the metamorphosis, in the latitude and longitude of the Toronto Asylum, must have been somewhat remarkable since the year 1852.

When Dr. Workman took charge of the asylum, there were 345 patients, of whom 187 were males and 158 females. In February, 1856, the number was 370, of whom 183 were males and 187 females, and in the report for that year the completion of the building is strongly urged. "The asylum is full—overcrowded—and cannot offer admittance to all who call for and require it; but it is a question of money against humanity; of 'public benevolence' against public apathy; of God's charity against man's avarice." It appears that this home-thrust produced its proper effects. There were, however, objections, in the minds of some persons, to the enlargement of the asylum, and, as a substitute for such enlargement, the University building in Toronto was opened as an "Auxiliary Female Asylum," at some period before the close of February, 1857. This was occupied by "quiet and harmless" patients.

In the summer of 1859, the calls for still further accommodations having

become imperative, the barracks at Fort Malden, near Amherstburg, were also converted into a "Branch Asylum," under the care of Dr. Fisher, formerly assistant physician to Dr. Workman; and in July, October, and December, three detachments of quiet, incurable patients, forming a total of 146, one-half of either sex, were transmitted to it from the main establishment.

On the 3d of August, 1861, the "Orillia Branch" was opened, and received 44 patients from the Asylum at Toronto.

The Asylum at Fort Malden was made independent of the parent institution on the 24th of September, 1861, and seven counties were assigned to it as the district from which it is to receive its patients. The number of patients, at the time of separation, was, males 108, females 91, total 199. The number remaining at the other three establishments, at the close of the year 1861, was—

	Men.	Women.	Total.
In the Chief Asylum, Toronto . . . . .	173	175	348
In the University Branch . . . . .	7	62	69
In the Orillia Branch . . . . .	20	24	44
Total . . . . .	200	261	461
Whole number, including Fort Malden . . . . .	308	352	660

Hence the number of patients in asylum has doubled since July, 1853.

	Men.	Women.	Total.
Patients admitted from 1841 to 1861, inclusive . . . . .	1416	1217	2633
Discharged . . . . .	790	625	1415
Died . . . . .			701

For cause already mentioned, the number discharged cannot be relied upon as the number of cures. In the  $8\frac{1}{2}$  years of Dr. Workman's administration, the admission and discharges were as follows:—

	Men.	Women.	Total.
Admitted . . . . .	612	639	1251
Discharged . . . . .	322	303	625

This makes the cures (*discharges*) equal to 50 per cent.; but Dr. W. acknowledges that "a small percentage of deduction is to be made for unrecovered patients removed by their friends." What is a "small percentage?" Is it 1, or 5, or 10 per cent.? Why doesn't he say, directly, in his reports, "Cured — so many?" That would be much more consistent with the general directness and plainness of speech which is a prominent characteristic of his writings. For ourselves, we think it very probable that his 50 per cent. is at least 8 per cent. higher than truth will warrant. If an institute which receives all classes of patients, without discrimination, can report even 40 per cent. of actual cures, it "does well, acts nobly."

In the first nine years of the existence of the asylum, the number of male patients exceeded that of females by more than 50 per cent.; but in the last  $8\frac{1}{2}$  years, the number of females admitted was greater by 27 than that of males.

"In a given aggregate of male and female patients," says the report for 1861, "it is found, here, that more single men and women than married men and women recover; not, however, because they are single, but because they are younger."

It appears that Dr. Workman has as little confidence as some others in many of the *causes* of insanity, as alleged by the friends or physicians of the patients; and thinks also, with others, that not unfrequently that which is considered the *cause* is rather the *effect* of the mental disorder. In the report for 1858, after quoting from his register a number of the influences to which insanity was attributed, he proceeds to make the following commentary:—

"Now, if any one of the preceding wide-spread agencies may be regarded as adequate to the overthrow of reason, how many lunatics would this Province contain? Intemperance alone would people fifty asylums as large as our present one. Jealous wives and husbands would probably fill thirty. Bad treatment of (by?) husbands would equal intemperance. Political excitement would people a mad-house in every county, and one of superior class and size in the



metropolis. Religious controversy would send in half the clergy of this Province, and large detachments of their congregations. Tobacco and slander would leave few in Canada at large. Excessive study, solar eclipses, love, inhalation of the laughing gas, and remorse of conscience, would probably make up but a small aggregate. In 651 cases of lunacy admitted by me into this Asylum, I have met with only one instance in which the last-named agency was alleged as the cause of the insanity, and the patient had not been very wicked.

"Religious excitement and religious despair both come in for their full share of censure, and yet we meet with few cases in which either can be regarded as purely casual. Those who are already half insane, or strongly predisposed to the malady, are very likely to rush into the former or to reason themselves into the latter.

"On the other hand, we cannot question the efficiency of such agencies as the following: Gestation; puerperal disorder; over lactation; fevers resulting in cerebral lesion; sun-stroke; intense cold to the head; injuries of the skull; apoplexy; epilepsy; parental intemperance; masturbation; scrofulous and syphilitic taint; defective diet, &c. &c."

The following remarks are taken from the report of 1860:—

"No (other) question is so frequently put to the physician of a lunatic asylum as that which calls upon him to state the most productive cause of insanity. Those who are most familiar with insanity find themselves the least able to reply to this question. The reader of one book, or the doctor of one patient, is sure to understand disease and its cure much better than the student of half a century."

The opinions expressed in the two extracts given below do not accord with those generally quoted from American reports. As our views upon the subjects have been fully exposed in former "notices," we shall withhold them here.

"A lunatic asylum is, in many respects, the best place for the treatment of the insane; but the transmission of every case of the malady to an institution of this character is neither necessary nor advisable. Under no consideration other than that of unavoidable necessity should any fellow-being be cast into a mad-house."<sup>1</sup> (*Report for 1857.*)

"It is very doubtful if the efficiency of early treatment has not, by many of the specialty, been much overrated. When, for example, we are told that 90 out of every 100 would recover if put under asylum treatment within the first month, we may be cautious in crediting the assertion. There are cases of insanity, and I fear the proportion is formidable, in which treatment cannot effect a cure, at whatever period it may be commenced. This is a fact which will readily be verified by many a disappointed asylum physician."<sup>2</sup>—*Report for 1861.*

Lest, however, we may misrepresent our author, it may be stated that he acknowledges the importance of early treatment, and even says: "It is, indeed, to be deplored that in many instances insanity is allowed to root itself in the system before the friends of patients can resolve to place them in an asylum; and thus incalculable evil is done. \* \* \* It is very far from my desire to discourage early transmissions to the asylum; but it is my duty to admonish against the entertainment of expectations which actual facts do not warrant."

We will now turn our attention to such parts of the reports as relate to some of the forms of insanity.

"Reasoning mania, in many of its varieties, is a formidable type of mental disease; and under the august sanction of religious dogmatism it assumes, perhaps, its most obstinate and alarming form. Suicidal propensity is seldom absent in such cases.

"Among the religious (mania) cases admitted in the past year (1859) there have been found a number who accuse themselves of having committed 'the unpardonable sin,' and in consequence believe themselves doomed to inevitable perdition. If those who teach doctrines of this character were, by law, sen-

<sup>1</sup> Does not Dr. Workman perceive that the continued use of such words as "mad-house," "lunacy," "wards," &c., tends to perpetuate the prejudices and false notions which have hitherto been among the objections to the commitment of an insane person to a hospital?



tenced to serve a definite period in the Asylum, nursing the victims of their dogmas, and guarding them from self-destruction, it would, perhaps, tend to the removal of the evil. I have seen one patient whose case might well have taught discretion to a thousand. \* \* \* \* These patients require for their benefit the mental vacuity of a mad-house. They should be placed among those who cannot or will not argue with them."

The subjoined is an abridgment from the report for 1861:—

"The past year has been most fearful in the annals of this Asylum as regards the number of suicidal patients admitted. No less than 53 of the 204 have been certified to be suicidal. \* \* \* \* I think I am warranted in regarding this unwonted manifestation of insane propensity as an epidemic. \* \* \* \* The malady has presented itself under strongly marked religious complexion; yet it has differed from the sporadic suicidal insanity of other years, in the fact that it has shown no incidental partiality. It has neither known distinction of creed nor of nationality; and although the religious delirium or delusions associated with it may have found expression in diversified phraseology, yet the generic, underlying mental error has been the same in all. They all believed they had committed unpardonable sin."

But one death from suicide, in the course of the year, is reported.

Our readers are aware of the general belief that the paralysis peculiar to the insane is chiefly produced by intemperance and venereal excesses. In his report for 1859, Dr. Workman says:—

"In this Asylum 12 cases have terminated in death since I entered, and two were taken home by their friends shortly before death. All occurred in men, and only in three could I discover proofs of intemperance. Yet in these three does sound philosophy warrant the assertion that their known intemperance was the cause of the disease of the brain of which they died? If so, what produced the disease in the remaining nine?"

In the report for 1860 he says: "The experience of another year has tended to confirm my belief that, *in this country* at least, the disease presents itself almost exclusively in temperate men."

He alludes, in the report for 1859, to the opinion that *ramollissement* of the brain always accompanies the disease, and presents the following summary of the results of his own observations:—

"In the majority of subjects I have found softening, but greatly diversified as to extent and locality. In a few instances, instead of softening, I have found unequivocal hardening. The least inconstant fact has been serous effusion, within the ventricles and on the surface; and in two or three cases this was the only morbid result observed. Thickening and opacity of the membranes are generally met with, and lymphic deposits, of varying consistence, over the sulci of the convolutions, are not uncommon."

Those sections of the reports which relate to the care and the treatment of the patients demand a passing notice.

"It is my belief that insanity is never associated with perfect bodily health; in the majority of cases it is certainly dependent on physical debility. \* \* \* \* Many patients come to this Asylum in a very reduced state, and not a few have been placed beyond the reach of curative means in consequence of the active and depressing therapeutic measures which have been adopted by their physicians. Blood-letting, purging, vomiting, salivation, blistering, cupping, setons, low diet, and the whole battery of medical destructives have been exhausted: and it is fortunate if the patient has fallen into the hands of only one of this class of psychologists. *The most promising cases are generally those for which least has been done.*

"Were generous diet, well-directed kindness, exemption from bodily restraints, moderate exercise, and in many cases a judicious allowance of wine or alcoholic beverages substituted for the present erroneous medical treatment, a very large proportion of those who are now sent to this Asylum would recover at home, and many who are rendered incurable for life might be saved from so melancholy a doom." (*Report for 1857.*)

"To live among the insane is but to be irresistibly constrained to pity and to love them; and when this bond is once established between the physician and

his confiding family, the task of governing becomes, so far as *they* are concerned, a labour of inconceivable pleasure. But the superintendent of an insane Asylum has other people to manage and govern besides his patients. \* \* \* So long as the insane were regarded as malignant, blood-thirsty, treacherous, vindictive, and implacable, and their malady was ascribed to demoniac possession, they were indeed treated as the devil's children ought to be. But the devil has much less to do with the inmates of an insane hospital than with those outside who are called sane. I believe there is no asylum superintendent who would not rather undertake the government of five hundred lunatics than of fifty sane persons taken indiscriminately from society." (*Report for 1858.*)

"Kindness to the *insane* inmates of an asylum sometimes demands, of those in command, the execution of much that is considered very unkind to the *sane* attendants. Small faults must be promptly dealt with, otherwise great ones will spring from the overlooking of them. Even an ill-natured attendant may be kind to a good and obliging patient; it requires a vigilant oversight to secure, from the best tempered attendant, the like treatment of the malevolent and perverse." (*Report for 1860.*)

"Nothing (else) contributes so much to the improvement and cure of the male patients of this asylum, as the employment afforded by the farm." (*Report for 1855.*)

The pictures in the building have already been mentioned. "It is a gratifying fact," says the report for 1858, "that in the course of three years but two instances have occurred of wilful injury to these ornaments. In one the offence was committed by a male patient, in a fit of aberration; and in the other by a female, in a state of lucid termagancy, which probably had been her normal condition at home."

"Curing insanity is not all the good we can do in asylums; might I not say, it is a small part of the good? Fifty years ago lunatics recovered in asylums, notwithstanding that they were then subjected to treatment very different from that of the present day. It must not be to statistics that we shall appeal to prove the superiority of modern asylums and modern treatment. Its most worthy proofs must be sought for, I apprehend, rather among the incurable, than the curable, insane." (*Report for 1861.*)

A few passages connected with the mortality of the insane are worthy of reproduction.

"Chronic insanity terminates frequently in complicated or obscure forms of disease, to which it is very difficult to assign any definite nosological designation. The ultimate symptoms of the case may appear, to ordinary observers, clearly enough indicative of the final pathological state of the organs then most prominently affected; but to the physician who has observed the long series of morbid phenomena which have preceded and determined the closing scene, they are suggestive of associated facts imperfectly appreciated by others.

"Exhaustive diarrhœa, terminating, as it does so often, both chronic and acute insanity, may appear, in itself, a sufficient fatal agency; yet it is but the last, and the least interesting, of a long succession of morbid occurrences, which have passed in review under the daily observance of the asylum physician. It has, perhaps, been present again and again, during the progress of the case, as a symptomatic accompaniment of unyielding disease of the brain, to the relief of which nature probably sent it; and having accomplished its mission, it subsided, *apparently* controlled by the medical remedies employed to check it. It has now once more come to the rescue; but its weapons, like those of other members of the healing art, are double-edged—striking at the disease it kills the organ." (*Report for 1859.*)

"Disparity between the mortality of male and female lunatics is a well-known fact in asylum statistics. In a large aggregate, the mortality of male lunatics is to that of the other sex, probably as 4 to 3 \* \* \* \* Female insanity is, in a large proportion of cases, merely a reflex disturbance of the brain. Insanity in men much more extensively involves cerebral lesion; and their mortality is proportionably increased." (*Report for 1860.*)

Of the 42 deaths in 1861, no less than 21, or 50 per cent. of the whole, are attributed to pulmonary consumption. Dr. Workman shows that, in several of



the hospitals of the United States, only 20 per cent. of the deaths are reported as having been the result of that disease. He refuses to admit that phthisis is more prevalent among the insane of Canada than among the insane of the United States, asks whence arises the apparent difference? and says: "The reply is simple and satisfactory. Our Canadian diagnosis is based on *post-mortem* examination, whilst in the United States asylums, *post-mortem* examinations are not held, unless exceptionally.

"Had not examination *post-mortem* revealed to me destructive tuberculous disease, in numerous instances it would not be known to have existed. Of the 21 patients whose deaths I ascribe to this disease, only three had both cough and expectoration, and only three or four others had any expectoration. All the rest died without these symptoms."

Several of the reports are enriched with the records of many autopsies.

In July, 1857, "a quantity of imported potatoes affected with the European rot were purchased for the use of the patients, and shortly afterwards several cases of severe dysentery and other formidable diseases of the digestive organs, evincing a marked typhoid type, occurred." The remaining potatoes having been buried, "the health of the patients speedily returned to its wonted state."

With two or three miscellaneous extracts we shall close this notice, already protracted beyond our customary limits. The first one is as applicable in some of our States as it is in Canada. It refers to the oath, legally required, that the insane person is "dangerous to be at large."

"Among the 'dangerous to be at large' lunatics sent from our gaols in 1860, was one paralytic in the lower extremities, and who, in the asylum, is as gentle as a child. \* \* \* \* Along with the above patient was brought another 'dangerous lunatic,' who is certainly one of the most gentle creatures I have ever seen in this house. \* \* \* \* How do the parties swearing manage the task? and how do the magistrates permit the oaths to be taken?"

"An evil of inconceivable magnitude and distressing results in the working and present condition of this institution, has been the introduction into it of criminal lunatics. \* \* \* It is an outrage against public benevolence, and an indignity to human affliction, to cast into the same house of refuge with the harmless, feeble, kind-hearted, and truthful victims of ordinary insanity, those moral monsters which nature seems sometimes to have formed for the purpose of teaching us the inestimable value of the constitution with which the species has been blessed; or, yet worse, those villains who affect insanity as a means of evading the just punishment of the most atrocious crimes." (*Report for 1853-4.*)

Another home-thrust, equally effective with one already mentioned. The criminal patients were soon afterwards removed to Kingston. The *hardiesse* with which the pen of the author of these reports grapples with evil is truly refreshing.

2. Before the year 1836, there was no receptacle exclusively devoted to the insane in the Province of New Brunswick. The pauper insane were sometimes confined in almshouses or gaols, and patients for whom restorative treatment was desired, were sent by their friends to foreign hospitals—generally to those in the United States. In the year mentioned, a building in the city of St. John was opened as a "Provisional Lunatic Asylum." It was chiefly intended for the indigent insane of the Province; and it received liberal grants from the public funds, towards its current expenses. After the lapse of about ten years, the necessity for enlarged accommodations having become urgent, an effort for the foundation and erection of a provincial hospital was successfully made. A farm of forty acres, on the west side of the harbor of St. John, was purchased, buildings erected thereupon, and the establishment opened for the reception of patients on the 12th of December, 1848.

The number of patients annually received at the provisional asylum varied from 29 to 73, the total for the thirteen years from 1836 to 1848, inclusive, being 652. The reports before us give no information in regard to the number of cures or deaths. Ninety patients remained in December, 1848, and these were transferred to the new hospital.



The edifice of the *Provincial Lunatic Asylum of New Brunswick* is constructed of brick. It consists of "a main centre building, and four corner buildings, three stories each, and four connecting wings, two stories, with a high two story erection, extending back from the centre, 80 by 26 feet. This back centre erection includes the washing department, in the basement, the kitchen, &c., on the first flat, and the chapel on the second flat."

In December, 1849, Dr. John Waddell was appointed superintendent. He still continues in the office, the duties of which he has performed with much ability and practical skill.

The number of patients annually admitted has varied from 48 to 108. The whole number, from the 12th of December, 1848, to the 31st of October, 1861, including the 90 transferred from the provisional asylum, is 1147.

Discharged, cured . . . . .	462
Died . . . . .	244
Remaining . . . . .	168

In the report for 1858, it is stated that, of the cases discharged *recovered*, 8 were of delirium tremens.

The reports of Dr. Waddell are very brief, and, aside from statistics, confined almost exclusively to the material and financial departments of the institution. We gather, however, a few extracts of a more professional type.

"As a general rule, insanity depends upon an atonic condition of the system, and in many of these cases there is great excitement; and if treatment is based on the erroneous idea (as it sometimes is) that by lowering the system the excitement will cease, incalculable mischief may be done. Every step in such a course increases the violence of the symptoms, and, if persisted in, the patient will either sink from exhaustion in the acute stage, or, if he possess vital powers sufficient to resist the evil effect of such treatment, it is, in many cases, but to decline into a state of hopeless imbecility." (*Report for 1859.*)

"I am convinced that useful employment, especially in the open air, judiciously adapted to the strength, and in harmony with the feelings of self-respect, has exerted a powerful influence in promoting the health, the comfort, and the happiness of those under my charge.

"The institution continues to be the resort of all classes. I am not aware of there being any insane persons provided for in any other way in the Province, nor do I know of any dangerous or troublesome persons being at large. The care and treatment of the insane seem to be entirely accomplished by the institution.

"There seems to be no alarming increase of mental disease in the Province; none beyond what is natural with the ordinary increase of population. The people being thinly scattered over a large and rich territory, where every facility exists to procure the comforts of life without that strife and exhausting toil so common in older and more thickly peopled lands, are necessarily exempt from a large class of influences that tend to develop insanity. I may mention, too, what appears to be a fact, that the popular element of this Province is seldom seriously disturbed. Political revolutions, which seem to convulse other communities all around, produce but a very transitory effect here, and, while the land is productive of everything that is good for the sustenance of its inhabitants, when properly cultivated, it is a soil in which spiritualism, and all other such isms—so prolific of insanity—do not flourish." (*Report for 1860.*)

Yes, and that last remark would doubtless apply to Greenland or to Patagonia, as well as to New Brunswick. The reviewer is not an advocate of "spiritualism," but he has some love for scientific investigation. He would, therefore, like to ask whether the ordinary forms of the Protestant religion—"so prolific of insanity"—see the hospital reports for the proof of the fact—"flourish" in the soil of New Brunswick?

The reports contain nothing by which we are enabled to form an estimate, either actual or comparative, of the facilities or means for moral treatment possessed by the institution. It is stated that religious services are performed on the Sabbath, and that newspapers "are much valued by the patients."

3. In 1845, three commissioners from Nova Scotia visited many of the hospitals for the insane in the United States, for the purpose of making investigations and observations preliminary to the foundation of a similar institution in the aforesaid province. For several years afterwards no very active measures were taken for the prosecution of the enterprise; but private donations and legislative appropriations therefor were made from time to time, and at length a farm of 85 acres, "on the Dartmouth side of the harbor of Halifax, at a distance of about two miles from the city," was selected by Miss D. L. Dix, as an appropriate site, and purchased accordingly.

The plan adopted for the building is that of the United States Government Hospital for the Insane, near Washington, D. C. This plan has been described in our former notices of reports.

The corner-stone of the hospital was laid on the 8th of June, 1856. A part of one wing having been completed, the hospital was opened, under the charge of Dr. James R. DeWolf, and the first patient received on the 26th of December, 1858. The general statistics from that date to the 31st of December, 1861, are as follows:—

Patients admitted . . . . .	193
Discharged . . . . .	76
Remaining, at the close of 1861 . . . . .	117
Of the patients discharged, there were cured . . . . .	37
Died . . . . .	14

The whole wing was finished in 1861, but neither the central edifice nor the other wing has been begun. Meanwhile the superintendent, with overcrowded halls, is pleading for further accommodations.

"According to the census of 1861, there are, in Nova Scotia, 340 insane persons, or rather more than one in a thousand of the entire population. Of this number, 223, or nearly two-thirds of the whole, remain without the advantages of hospital care, many of them wandering about—even in this inclement season—others confined mercilessly, and all so situated as to demand our warmest sympathy." (*Report for 1861.*)

"A fair proportion of the wealthier classes continue to avail themselves of the hospital for the care and cure of their friends. The money hitherto sent abroad to maintain this class of patients in foreign institutions, is now expended within our own borders." (1861.)

Here is a case of the use of an anæsthetic for a novel purpose:—

"A young female patient who had not spoken for months, gradually desisted from eating, and it was with the greatest difficulty that her mouth could be opened. It was only under the relaxing influence of chloroform that the rigidity of the jaws could be overcome. The patient for upwards of three months swallowed no food voluntarily. Twice, daily, was the feeding pump resorted to. At last she was induced to drink a little, then a little more, then took soft food, and now eats heartily of the ordinary diet. She has grown quite fleshy of late, and is happily beginning to speak." (*Report for 1860.*)

We cull a few extracts in regard to moral treatment:—

"The industrious patients are encouraged by small gratuities; but it is not in our power to carry out this principle to the extent its importance deserves. It would be only just and fair to recompense the labour of quiet, industrious patients, either by periodical money payments, or by allowing their earnings to accumulate, and paying them the interest of this sum annually, should they become able to leave the hospital." (1861.)

"The restoration of the insane being the primary object of the institution, labour must be looked upon more in a curative than a pecuniary light. Hence we find it requisite, in some instances, to check the eagerness for continued laborious exertion which is exhibited by some patients, and so to apportion the work that all who engage in it may be benefited by what they do." (1860.)

"In order to carry out effectually the modern humane system of non-restraint, so ably advocated by Dr. Conolly, we have aimed from the first to engage the services of active, cheerful and trustworthy attendants, and have instructed them in their arduous and responsible duties. In one instance we combated



the determined self-injury of a patient who had a habit of beating his head with increasing violence against the wall. We fitted up, for this man, a "padded room," by means of which he has enjoyed a freedom of motion, and an amount of liberty, which could in no other way be accorded to him.

"Cases of extreme destructiveness occasionally arise, setting all ordinary care utterly at defiance. One such we had recently, when the constant presence, by day and by night, of one, generally two, and often three attendants, was insufficient to prevent the destruction of property and the serious disturbance of the other patients. The propensity was at last overcome by continued kindness, and by a determined refusal to sanction the application of any restraining apparatus." (1861.)

We do not perceive how the refusal to apply mechanical restraint assisted in overcoming the fury of the patient, unless he feigned his fury for the sole purpose of being placed under such restraint. Although we are in favour of reducing restraint to its wholesome minimum, and, as early as 1845 and 1846, did, as we believe, reduce it to a lower amount than had ever theretofore been attained on this side of the Atlantic, yet we must candidly avow our belief that the above case was badly treated. We think that less evil would have arisen to the patient himself, if he had been placed, alone, in a vacant room, with his hands securely and comfortably (for that can be done) confined by a strong camisole.

There are many patients who, if they were placed under the surveillance of *three* special attendants, would continue their violence (when otherwise it would have subsided) through irritation or anger, or from "spite," or, if from neither of these causes, then merely "for the fun of the thing," and to show those attendants, as Sam. Patch, when he was about to leap from the cataract, said that he wished to show the world, that "some things can be done as well as others."

"Excursions to the country in summer, sleigh-drives in the winter, visits to interesting exhibitions in the city occasionally, and attendance at the village church on Sundays, have, during the past year, relieved the tedium of daily routine." (1861.)

A billiard table, a piano forte, books, engravings, &c., have been presented to the institution; and by a sum raised by subscription; bagatelle, back-gammon, and draught-boards, footballs, pictures and toys, have been purchased. The list of "acknowledgments" is long in each of the last reports, and hence we conclude that the Nova Scotia Hospital for the Insane is, as it ought to be, a centre of popular interest and sympathy.

P. E.

ART. XXIV.—*On Diseases of the Skin.* By ERASMUS WILSON, F. R. S. Fifth American from the fifth and revised London edition. With plates and illustrations on wood. Philadelphia: Blanchard & Lea, 1863. 8vo. pp. 694.

A REVIEW of the fourth edition of this work was given in the number of this Journal for October, 1857. The peculiarities of the treatise of Mr. Wilson on diseases of the skin, which render it far superior to any other in the English language, are there carefully and fully pointed out and commented upon. We believe, however, that the great value of the work, and the additions made to the present edition, call for something more on the present occasion than the simple announcement of the appearance of a new edition, and the mere indication of the points in which this volume differs from its predecessor.

Mr. Wilson's treatise is not simply what its title indicates; that is, if we are to judge from what is generally contained in works bearing the title on "Diseases of the Skin." It contains a great deal more than a detailed description of the vesicular, papular, pustular, and other eruptive affections that are witnessed on the external covering of the body. As distinguishing it from all others it might be styled a treatise on the skin and its appendages, the hair and the nails, and



the sudoriparous and sebiparous glands, their normal and pathological anatomy and physiology; with an account of their diseases and of the affections in which a disorder of these parts is a prominent symptom, together with their proper treatment.

Owing to the manner in which they are always treated of in medical writings, diseases of the skin bear about the same relation to other groups of disease, that the irregular verbs in a grammar bear to the regular conjugations. As disconnected, unlike all others, and difficult to remember, their study is universally disliked. From the way, however, in which the whole subject has been comprehended by Mr. Wilson, skin diseases are, so to speak, regularized, and their study in the work before us is anything but disagreeable. Indeed, it can be said with truth, that so readable and so satisfactory a medical work is rarely met with.

After an excellent account of the anatomy and physiology of the skin, the sudoriparous and the sebiparous systems, and the hairs and nails, Mr. Wilson, in a separate chapter, enters upon the subject of the classification of diseases of skin, and exposes in a way that cannot be too much admired the manner in which such a classification should be conducted.

*L'œil ne voit pas ce qui le touche*, 'the eye does not see the object that touches it,' is a favourite maxim which may be applied on this occasion, where, precisely because diseases are directly visible immediately under the eye, we do not judge of them correctly. It is from classifying diseases to which the skin is subject, almost entirely according to what is told of them by the eye, that so little practical benefit results. For example, on the scalp true papulæ are never seen, and vesicles very rarely. On the hands, and especially the fingers, vesicles and pustules are frequent; but on the rest of the surface of the body lichen is the common type. So that, in a general eruption, produced by one and the same cause, occurring upon the entire surface of the body, we would have erythema in one part, lichen in another, eczema in a third, possibly impetigo in a fourth, and psoriasis in a fifth. Now if we should follow the generality of treatises on diseases of the skin in presence of such a case, we would see here five different and distinct complaints belonging to five different orders of disease, and possibly think it necessary, in order to follow what we have read as to the proper course to pursue, to prescribe five different modes of treatment. In a practical point of view, and taking other things into consideration besides what we can see, there is here but one disease, an inflammatory eruption, exhibiting in various parts of the body the five usual modes of manifestation of cutaneous inflammation, and all amenable to the same treatment. For practical purposes, diseases of the skin should be arranged according to their causes; the classification should be etiological. To convince any one who may be at all skeptical on this point, we cannot do better than to refer him to the chapter on classification in the volume before us, and also to the two succeeding chapters in the general pathology and the general therapeutics of the skin.

The present volume differs from that of the preceding American edition principally in containing a number of plates illustrating the anatomy of the skin and its appendages, and the various cutaneous diseases comprising those prepared by Mr. Wilson to illustrate his work on constitutional syphilis and syphilitic eruptions. The whole getting up of the volume is as perfect as possible, and we take unusual pleasure in announcing its presentation to the profession in this country. There are very few medical works which its members generally can have so much reason to desire to possess. By it the treatment of a badly taught and neglected class of diseases, that are the cause of very considerable suffering and annoyance to their patients, is rendered simple and rational, and removed from the special and isolated position which they at present occupy into the general category of diseases of the human frame.

W. F. A.

ART. XXV.—*Annuaire de Thérapeutique, de Matière Médicale, de Pharmacie et de Toxicologie, pour 1862, &c.* Par A. BOUCHARDAT, Prof. d'Hygiène de la Faculté de Médecine de Paris, &c. 22 Année: Paris.

THE number of the "Annuaire" for 1862, by the distinguished pharmacologist, Bouchardat, is fully as interesting as his former summaries. One of the merits of this work is its long-continued publication, which gives it the importance of an extensive serial. It is especially valuable as a record for many years of the advance and progress of discovery in the branch to which it is devoted, and must now be considered as a necessary portion of the library of the inquiring pharmacist and therapist. In our last notice for 1861, a reference was made to the history of this standard periodical, and we believe that a summary of the contents of the present issue cannot be otherwise than acceptable to the readers of the Journal.

Under the head of "*Narcotics*," the first article is devoted to the consideration of the therapeutics of poisoning by morphia and the medicines containing it, with a note of some reflections upon the detection of morphia in the urine. At the commencement of his remarks under this title, M. Bouchardat states that it is surprising that he has not previously published his views, particularly as he has dwelt fully upon the subject in his lectures, in which he maintains that, after the primary stimulant impression upon the nervous system, which assimilates morphia to caffeine, has subsided, the depressing effect occurs, the most prominent manifestation of which is sleep. This latter impression is confined at first to the functions of relation, and the sleep resembles that of a physiological kind; but if the dose be larger, "the sleep" extends to the apparatus of nutrition, or organic life. The functions of respiration and circulation belong to the latter series, and should never sleep. If sleep invades these functions, life becomes extinguished, and this is precisely the mechanism of poisoning by opiates. It is ordinarily from six to eight hours that the *general sleep* occurs after the ingestion of the opiate, if it be not interfered with; and it can be readily understood how poisoning can be more rapid if taken at night when retiring, than when taken in the morning. From this is deduced the importance of counteracting the first or physiological sleep, as it precedes the second, or the sleep of the apparatus of nutrition, and it is essential to prevent the patient from falling into it by every means at command. As an antagonistic agent to this condition, M. Bouchardat recommends the liberal use of the strongest infusion of coffee, and it is best to keep the patient awake for twelve or eighteen hours, so as to afford ample time for the elimination of the morphia by the kidneys. The determination of this fact is to be effected by the appropriate test. The test proposed is essentially the same as for quinia and other alkaloids, viz., the iodo-iodide of potassium, made after the following formula: Take of iodine  $\mathfrak{z}$ iss, of iodide of potassium  $\mathfrak{z}\mathfrak{v}$ , of water  $\mathfrak{f}\mathfrak{z}\mathfrak{v}\mathfrak{i}\mathfrak{j}$ . A less quantity may be prepared, or Lugol's solution will answer the purpose. There need be no fear of employing the solution in excess. So long as the urine gives brown flocculi, the morphia has not been eliminated, and it is necessary to keep the patient awake. In the treatment of the case it is very important to watch the first sleep, to be sure that the respiration and the circulation are normal.

With the adoption of this mode of treating poisoning by opium, M. Bouchardat at the same time looks favourably upon the employment of other remedies, as emetics, if the poison be recently taken, for the double purpose of emptying the stomach and keeping the patient awake. With respect to the latter effect it may be doubted whether the impression of an emetic is calculated to promote wakefulness, and, as depression is induced, the chance of absorption may be augmented. Still an emetic removes the substance from the stomach, and this is most desirable.

With respect to chemical antidotes, abundant evidence is afforded to render him an unhesitating advocate of them. M. Bouchardat does not enter into the consideration of the newly proposed narcotic antidotes, or, as they should more



appropriately be called, the vital antagonistic remedies. From the whole tenor of his reflections, both now and heretofore, we are inclined to believe that he has no faith in their use. By so acute an observer and faithful a recorder they cannot have been overlooked.

*Physiological Effects of Atropia, and its Employment in the Treatment of Epilepsy.*—A resumé is given of an essay published upon this subject by M. Michéa, in the *Gazette des Hôpitaux*, as follows: 1. Atropia and its salts act principally upon the cerebro-spinal system. 2. They depress or tend to abolish the functions of the different parts of the system successively, and not simultaneously. 3. They affect the motor nervous apparatus before affecting the sensitive, and the last to be impressed are the organs of intelligence and of the moral feelings, or the cerebral organs. 4. In the same way as attacks of epilepsy commence in the muscles of the neck and of the face, the paralysis of atropia, beginning with the iris, successively proceeds to the muscles of deglutition, of phonation, and to the muscles of the eye. In other words, the organs, which are first convulsively attacked in epilepsy, are nearly the same as those impressed by atropia, the order being reversed. 5. In the rational treatment of epilepsy, atropia is preferable to *curare*, which paralyzes exclusively the motor nerves; while the active principle of belladonna not only paralyzes the motor nerves, but also the sensitive nerves, which are the seat of the *aura epileptica*. 6. In the class of Batraciens, poisoned by strychnia, after being previously submitted to the influence of valerianic acid, of valerianate of zinc, or valerianate of quinia, the convulsions were not as violent as when the impression was made exclusively by strychnia; and in place of succumbing, as in the last case, in a perfectly rigid state, they died in a state of complete muscular relaxation. 7. In frogs, previously submitted to the action of the oxide of zinc, of sulphate of zinc, or the sulphate of quinia, the convulsions of strychnia are as intense, or nearly so, and their duration as protracted, as when these articles were not used. And further, death occurred in a tetanic state. 8. In man, certain primary or physiological effects of atropia are produced when the salts are employed. These were brought about more rapidly, and from smaller doses, when the valerianate was employed, than by the sulphate, a fact which is explained by the supposition that the valerianic acid is operative. A half milligramme (gr.  $\frac{1}{32}$ ) of the valerianate of atropia produces often dryness of the throat and dilatation of the pupils the day after its exhibition; whilst, generally, it is hardly on the day after the next, and in the dose of 1 milligramme (gr.  $\frac{1}{16}$ ) that, the sulphate produces the same phenomena. Therapeutically less valerianate of atropia, than of the sulphate, is required to modify the access of epilepsy, or to postpone its return, or weaken its violence. This result, according to the author, is often obtained without exceeding the dose of (in all) 2 milligrammes, or gr.  $\frac{1}{32}$ , provided the use of the medicine, interrupted from time to time, is sufficiently continued. In fact, in the treatment of epilepsy, the practice is to give valerianate of atropia in the dose of a half milligramme every twenty-four hours, and never exceed 2 milligrammes. 9. In consequence of the state of hyperæsthesia of the skin, either general or partial, existing in epileptics, it is necessary in the treatment to take care to avoid all exciting impressions on the surface capable of producing reflex action, and particularly electrical excitement and cold in the form of lavation or bathing. With reference to the foregoing treatment, M. Bouchardat informs us that he agrees with M. Michéa in two points; the first is to commence the dose with a  $\frac{1}{2}$  milligramme, and never to exceed 2 milligrammes; the second is to suspend the employment of the medicine on the occurrence of disturbance of vision.

Contrary to the opinion of M. Michéa, he believes that crystallizable atropia, which is soluble in the gastric juice, is preferable to all the salts of which it is the base. He reminds the reader that he and Stuart Cooper first introduced atropia into therapeutics, and that he himself first prescribed it in epilepsy.—*Annuaire*, 1848.

The following is a liniment of belladonna: Take of extract of belladonna and of glycerine each two drachms and a half, and mix intimately. Use as an embrocation upon the breast, then cover the part with taffeta. It is intended to check the flow of milk and to prevent abscess.



*Effects of Tobacco.*—Dr. B. W. Richardson has made some interesting remarks from the observation of a large number of smokers. In the morning before smoking the blood of a great smoker is in a normal condition; in the evening after smoking fifteen or twenty pipes, the blood becomes abnormal; the central point, that is, the central depression of the blood-corpuscles is not visible, and the drops of blood coagulate without drying, which occurs when taken upon the person awakening in the morning. After a tranquil night of sleep the morbid phenomenon referred to disappears. The inhalation of air charged with ammonia has the same effect upon the globules of blood as the smoke of tobacco. The author moreover remarks, that the breath of smokers is always more or less ammoniacal.

*Poisoning by the Berries of the Solanum Pseudo-Capsicum.*—From the *Journal Méd. de Bordeaux* are taken two interesting cases which illustrate the poisonous influence of the berries of the plants pertaining to the genus *Solanum*. The one referred to has been introduced into Europe and this country from South America. It has been called the *S. montanum* and *S. Valenzualæ*, D. C. It resembles the bird's-eye pepper both in the leaves and berries. From the resemblance to the latter it has the first mentioned designation. A child of five years of age died at Moissac from eating the berries of this plant, and another child of four years was seriously affected by them. Three or four berries are sufficient to produce poisonous effects of serious import, such as nausea and vomiting, somnolence, acute hypogastric pain, dilatation of the pupil, &c. In the latter case free vomiting, the application of mustard plasters, and the administration of coffee, affording relief.

The berries of the *Solanum dulcamara* are productive of the same results. A case of death is recorded in the *Revue Médico-Chirurgicale*, from the latter. These cases bring to mind one which occurred to the late Dr. Isaac Parrish, of this city. Symptoms of narcotic poisoning were present but not accounted for until autopsy revealed the cause in the stomach.

*Chloroform and Ether.*—It appears that the cases of death from *chloroform* are more numerous this year than in preceding years. Perhaps it may be that the medical press has registered them with more care than previously. M. Bouchardat states, that he accords with the opinion of the editor of *L'Union Médicale*, in thinking that "chloroform has so great a power for good or for evil that all that tends to preserve the good and diminish the bad ought to be recorded with the greatest care." The following facts are presented by the last year's experience: M. Vignerot has presented an experimental work, which establishes the fact clearly, that the pain of the operation favours the syncope produced by the chloroform. M. Am. Forget endorses this in the following terms: "In the presence of these facts, confirmed equally by clinical observation and experimental teaching, and which concur in establishing that where the traumatic impression alone is acute, yet fugacious and transient, the intervention of anæsthesia by chloroform renders this impression persistent and profound, perhaps mortal. In the presence of these facts, I say, who will not be led to demand, if the remedy for an evil inherent to humanity, that is for physical pain, is not worse than the evil itself?" M. Forget excludes from this view of anæsthetics the employment of ether, of which he says that this article which preceded the employment of chloroform, and whose abandonment was justified by no sufficient motive, is far from being as dangerous. It is capable of fulfilling all the indications required of it. The surgeons of Lyons have never abandoned the employment of ether, and they have been justified in giving to it the preference; for it is but exceptionally that the ultra partisans of chloroform have been able to oppose to their opinion and practice, which has now continued nearly twenty years, some rare examples of accidents of a serious nature, and then at the commencement of its use, and which have not been interpreted with perfectly irreproachable accuracy.

A memoir before the Chirurgical Society of Paris, by Dr. Ernest Berchon, has for its object the direction of attention on the part of surgeons to the *methodical* employment of anæsthetics, and especially of chloroform. It has for its foundation an immense number of facts, collected since 1849, in the hospitals

of the Military Marine, on board the transports in the Crimea, in Italy, and in the naval stations and colonies.

It contains 296 observations derived from the clinical wards of surgery, mostly of Brest and Toulon, and the author has limited himself to the clinical demonstration that if the anæsthetic be properly administered, as is the case in the marine service, no accident will occur. This result, sufficiently remarkable to be noted, is due to the rules invariably adhered to. These rules consist principally, in the use of chloroform chemically pure; in the limitation of the dose to an exact quantity, which should not exceed 10 grammes (154 grains), and in the employment of an apparatus which is very simple and does not impede external respiration. The apparatus is a cone of pasteboard with a diaphragm of gauze. In the greatest number of cases two or three minutes suffice to bring on profound insensibility, whatever may be the age, the occupation, or other individual conditions of the patients.

Anæsthesia, thus rapidly produced, is kept up wonderfully to the termination of the most varied operations, and it is rare to be obliged to administer the second dose, of five grammes, to keep up the effect.

The study of the symptoms of the ordinary periods of inhalation is also entered upon in this memoir, as well as successive discussions upon anæsthetic agents that took place either at the Academy of Medicine, in 1849 and in 1857, or at the Surgical Society, in 1853.

The enumeration of clinical and chemical means proper to ascertain the purity of chloroform, and the employment of measures calculated to combat the accidents attendant upon inhalations, complete this work, which is pronounced to be one of the most useful and perfect to which the practice of anæsthesia has given rise. The absolute innoxiousness of the method since 1849, ought naturally to attract attention in the face of recent misfortunes. It shows that the fears put forth on the subject of chloroform are, *at least*, exaggerated.

*Vomiting produced by Chloroform, and Means of preventing it.*—We are informed by Dr. Fisher that vomiting is one of the complications produced by chloroform; to be apprehended because it can induce asphyxia and syncope. He recommends that a glass of wine be administered to the patient, from fifteen to twenty minutes before the inhalation, in order to guard against the occurrence.

*Chloroform in the Treatment of Biliary Calculi*, is recommended by M. Bouchardat, on the principle of dissolving the cholesterine of these bodies. It may be used as a substitute for ether. For the internal administration of chloroform a formula is offered, as follows: 1 gramme of chloroform and 8 grammes of alcohol, given in wine, water, or syrup. The rule to be followed is 1 part to 8, and in administering a larger quantity than directed by the formula, this is to be observed. The mixture with syrup gives a perfectly stable preparation, capable of preservation for several months without alteration. With wine the flavour is improved.

*New Local Anæsthetic Agent.*—M. A. Claisse recommends, when minor operations are to be performed, to apply or rub upon the part a strong solution of camphor in ether; the application is to be continued for a minute or two before the incision is made. In this way the pain is lessened when an abscess is opened, &c.

Under the head of stimulants is a summary of the effects of *coca*, which was published in *L'Echo Medical Suisse*, and which contains the following conclusions: 1. In small doses coca produces a local action, consisting in a passing augmentation of the salivary secretion, followed by dryness of the throat and a feeling of warmth in the epigastrium; moreover, it has a tonic property, which supports under fatigue. 2. In larger doses coca acts as a special narcotic. The most marked effects are general ease and comfort, intellectual and corporeal composure, and reduction of the pulse. In very high doses it additionally induces dilatation of the pupils. It is now known that this article is the leaf of the *Ilex paraguayensis*, and, according to Stahlshmidt, it contains *cafein* or *thein*. The Bolivean article owes its properties to an alkaloid.

*Physiological and Therapeutical Effects of Digitalis.*—Under this head we have the conclusions that have been reached by Pfaff and Germain:—



1. That in contradiction to the opinion of Saunders, which is in opposition to all that has been observed before and since, digitalis diminishes the *frequency* of the contractions of the heart.

2. It is *not* demonstrated that it *weakens* the force of the contractions of the heart, whilst the theory and experiments of physiologists, as well as M. Germain's own experience, prove that one of the effects, in diminution of the orifices of the heart, is to augment it, and, consequently, there is no danger of giving this article in cases where the energy of the heart appears diminished.

3. The frequency of the heart's action in the case of contraction of the orifices, preventing a return to a normal functional condition, and keeping up the disorder of the circulation, digitalis possesses the property of diminishing this frequency, and it is not necessary to appeal to any other mode of operation to explain the amelioration of the symptoms under the use of the medicine.

4. There is not to be found in the writings of authors anything to prove that digitalis possesses *diuretic properties*, and this reputation which was given to it by Withering, appears to have been accepted without discussion by those who have followed him.

5. It is true that in organic affections of the heart, where the employment of digitalis leads to reduction of the circulation, an *abundant diuresis* is produced. But this occurrence is but a mediate effect of the return of the circulation to the normal state.

6. All authorities are unanimous in attributing to digitalis a powerful influence over the stomach. In small doses it stimulates the appetite, but in doses by which it acts upon the heart, it produces anorexia, sometimes nausea, and may become the cause of serious dyspepsia.

The following is a summary of the rules to be observed in the administration of digitalis, according to the observations of M. Pfaff:—

1. Digitalis ought not to be given in *increasing* but in *decreasing* doses.

2. It is necessary to diminish the dose, as soon as the paralyzing effect is perceived upon the heart and the arterial system.

3. The calming impression of the medicine upon pathological activity of the heart is persistent, and continues sometimes from five to eight weeks.

4. Digitalis ought not to be continued under any form more than six or eight days. If after eight days of administration, the desirable results are not obtained, it is best to have recourse to squill or colchicum. These two last mentioned agents exercise a depressing influence upon the activity of the heart, and if, after their administration, digitalis is again used, its effects are more speedy and of long continuance.

5. In subjects of torpid constitution, it is best to precede the use of digitalis by squill or colchicum.

6. To avoid derangement of the stomach, it is best to associate digitalis with aromatics, or bitter tonics.

7. In the aged it is best to associate it with bark; in tuberculous subjects with opium; in dropsical cases with potassa salts or the acetate of ammonia, with polygala, squill, juniper berries, &c.; in the plethoric with cremor tartar, magnesia, sulphate of potassa or nitre; in the anæmic with iron.

8. In following the employment of digitalis by arsenic, it may happen that the cyanosis attendant on the diseases of the heart is lessened.

In commenting upon the first series of propositions, it is remarked by M. Bouchardat that in all cases he prefers digitaline for exhibition in accordance with the views of M. Homolle and Quevenne, and that he concedes willingly two things: 1st, that the diuretic property does not appear clearly except in certain pathological conditions, and especially in dropsy connected with disease of the heart; 2dly, that this diuretic action is tardy and does not occur until after four to six days, when digitaline has been given in sufficiently large doses, yet he dares not affirm as positively as M. Germain that the diuretic effect depends upon the return of the circulation to the normal state. With respect to the second series, he remarks that he is perfectly of accord with the injunction that digitalis should not be continued more than six or eight days continuously. But he disagrees with M. Pfaff in prescribing the medicine in decreasing doses.



With regard to the course of alternating with squill and colchicum, he perfectly agrees with the author.

As has been the custom with M. Bouchardat, the concluding portion of the *Annuaire* being devoted to some subject of interest in a hygienic, therapeutic, or chemico-physiological point of view, he has selected for discussion in the present issue a highly important topic, viz., the "*Abuse and the use of Strong and Fermented Liquors.*" The essay under the above title, it appears, was read before the "Conference of the Polytechnic Association for Working Men," held in the Amphitheatre of the Faculty of Medicine of Paris. We shall give an analysis of the facts and statements made by the author.

Avowing himself as bred in the wine-producing portion of France, and adverting to the importance of this industrial branch to the revenue and prosperity of the nation, he commences his statement with the following decided avowal: "The more I have carefully explored the depths of the question as above stated, the more I have become convinced that the undue use and uncontrolled employment of alcoholic drink is an enemy which the physician and the philosopher ought most to fear in its opposition to the progressive march of humanity." The general impression is that the French nation is not addicted to the vice of drunkenness, yet here is an exposition of opinion from a practical observer which is worthy of attention, and which chimes in with the experience of enlightened philanthropists over the world.

With respect to the progress of hygiene and its results in France, we are informed, according to the tables of Duvillars, that before the year 1789 the mean duration of life was 28 years. In 1817 it had advanced to 31 years. In 1834 to 34, and in 1853 to 36. It may then be said that the term of life has been extended with the extension of civilization, yet may it be said that civilization, advancing in a certain direction, conducts to decadence and tends to the abridgment of the mean duration of life.

The crowding of people in great manufactories has not favoured progress in all particulars, for we may instance the deplorable state at a certain period of the working population of Manchester and Lille. In some of the quarters of these cities, the mean of life's duration had descended below the lowest number that has been stated. The movement of the inhabitants of the country to large cities is equally unfortunate to the average of life and to the progress of civilization. Among a population removed from the country, there are generated factitious wants, which are gratified at the expense of real requirements. With many other evils is produced that state which may be called ennui of life, which is combated by measures affecting the nervous system, and which conduce to degeneration, such as indulgence in the use of tobacco and the consumption of alcohol.

In the following order the subject of alcohol is discussed: 1st, of the alcoholic liquors in general, and their immediate action upon the economy; 2dly, the history of the principal alcoholic drinks and spirituous products; 3d and lastly, the exposition of the evils originating from the abuse of alcohol.

Alcohol diluted with water is rapidly absorbed, as has been demonstrated by M. Bouchardat and M. Sandras. They gave to a vigorous dog a draught containing 150 grammes of alcohol and 50 grammes of oil, which was swallowed without difficulty. In two hours he was killed, when the stomach was found to contain but a small quantity of the alcohol, in fact but one gramme of matter containing it could be obtained by distillation. The intestines contained none, and the chyme showed only its presence by the faintest odour. It is not taken into the system by the lacteals, but as determined by the experimenters, through the veins, the blood of the portal vein exhibiting a notable quantity of it. It has been detected by Lallemand, Perrine and Dusoy, in the liver, in the brain, and other organs.

The presence of alcohol in the blood and its effect upon the blood itself can be demonstrated by experiment. It is known that few animals have a liking for alcohol, and that some of them, the rabbit for instance, are killed by small quantities, but others, as cocks, take greedily of food impregnated with it. An old cock was selected, who was remarkable for his taste for bread soaked in

brandy. He ate so rapidly that he was soon in a state of intoxication, his eyes shone, his gait was unsteady, but the important point for consideration was the change of colour in his comb. To the bright ruby colour succeeded a black hue; the arterial blood was supplanted by venous blood. From this M. Bouchardat argues that this action upon the blood is sufficient explanation of the sudden death from asphyxia that follows the ingestion of alcohol, of which he has seen numerous cases. It may however be stated that where death is instantaneous it is more likely due to the intense shock to the nervous system and paralysis of the heart.

The question arises, is alcohol eliminated from the economy, and in what manner? This question, which has been much agitated, M. Bouchardat confesses he approaches with reserve. M. Sandras stated (*Annuaire* for 1847) that a drunkard, saturated with alcohol, emits alcohol from the lungs by gas and vapour, yet this is a small portion of the quantity that had been actually absorbed. It was not found in the perspiration, and with respect to the urine, MM. Lallemand, Perrin and Duroy were more fortunate than the above experimenters. Still a quantity was obtained which in no manner represents the alcohol absorbed, so that the conclusions of those gentlemen are not borne out that alcohol passes through the economy *without change*. A man was closely observed for several days, who with his regimen took 300 grammes of red wine, but no evidence was given of free elimination in the way alluded to. Hence the author adheres to his opinion that a small quantity of the alcohol taken is eliminated, and the balance is consumed and transformed into carbonic acid and water. With reference to this case of conversion, it has been asserted that aldehyde and acetic acid were products within the economy, but these bodies were not detected either by Bouchardat and Sandras, or the three experimenters named. As a direct conflict exists between the statements and conclusions of those who have examined the subject, it is open to further experimental investigation.

It is argued that alcohol from its destruction in the economy produces heat, and this in a short time after it is taken in. Such physiological effect accounts for the greater digestion with impunity of this combustible in winter than in summer, and to the largest extent by the Northern nations. Does it impart force? The increase of energy is but temporary, still, when the article is properly used it is an assistance to labour. It is an excitant of the nervous system, and if this excitant is not employed advantageously, it is followed by depression. It must be admitted, however, that alcoholic drinks when taken in moderation have an incontestable power to excite the intelligence, combat ennui, produce agreeable reveries, without resulting in loss; and it is important that this effect should be secured when it is first produced. This is a law which applies to all excitants of the nervous system. Proper alcoholic beverages, therefore, offer undoubted advantages to convalescents who have been exhausted by disease, and to the labourer, who is borne down by work, but at the same time it is clear that an excess is in every case injurious.

A reference has been made to the influence of climate upon the action of alcohol upon the system. From Mr. Hus, a distinguished physician, who has written a most interesting work upon the abuse of alcohol, we learn that in Sweden, many workmen can from habit absorb a demi-litre of brandy daily, and that disease of the brain is very common with this class of drinkers, whose lives are much curtailed. In Russia, the consumption of alcohol is enormous, it is encouraged by the "farmers of the revenue," and this is one of the most important reforms to be accomplished in the fiscal system of the Emperor.

If we study the influence of alcoholic drink according to the periods of life, it will be found that it is most injurious in infancy, that the abuse of it presents considerable danger for adolescents, and that in age its indulgence is less prejudicial. At the particular period of life, which may be specified as the "turn of life," there is danger from the tendency to increase the quantity of alcoholic drink; the nervous system may be undermined, and so far from augmenting the amount, it ought rather to be lessened. It has been said that wine is the "milk of old age," but in green old age it should be moderately used. At the period, when from old age there is failure of power, when solid nourishment is with



difficulty digested, it is stated by M. Bouchardat that wine offers the "resource supreme."

With respect to sex, it is remarked that in consequence of the impressible nature of the nervous system, alcoholic drinks should be used with great caution, but further, a constant restraint is imposed upon the female sex, since modesty and inebriety are entirely incompatible.

There is a condition upon which it is important to insist in the consideration of alcoholic drinks, and that is emptiness of the stomach. It is the custom to take a small drink of alcoholic fluid upon rising, but, alas, to this the habit is not restricted. The system at this time is in the worst state for the reception of such ingesta. The stomach, in consequence of its emptiness, is more liable to irritation than after a repast of solid aliment, which by stimulating the flow of gastric juice produces dilution, protects the mucous coat and induces slower absorption, or at least in combination. Upon an empty stomach then alcoholic liquors should not be taken.

After discussing the conditions of drunkenness and its concomitants, M. Bouchardat enters upon the consideration of the several kinds of alcoholic drinks; commencing with wine. This form of fermented liquor is regarded as the most important, the most useful when its employment is properly regulated, and the least injurious, in certain respects, even when abused.

After presenting the varieties of grapes constituting the stocks which furnish the several kinds of wine in France, M. Bouchardat gives a list of the ingredients which are found in the 1000 parts of *red wine*, to wit: water, 878; alcohol, 100; of butyric and amylic alcohol, and aldehyde, traces. Acetic, capric, caprylic, and other ethers, odorous matter and essential oils, constituting the bouquet, sugar, mannite, glycerine, mucilage, gum, colouring matter (crocyanine), fatty matter and azoted matter, tannin and carbonic acid, bitartrate of potassa, tartrates, racemates, acetates, propionates, butyrates, lactates, citrates, malates, sulphates, nitrates, phosphates, silicates, chlorides, iodides, fluorides, succinates, potassa, soda, lime, magnesia, alumina, iron, and ammonia, 22. This elaborate composition of wine, however, is not to be regarded as uniform. Some of the principles are wanting in wine, and some of them are in infinite small amount. The proportion of alcohol varies in natural wines from 5 to 15 per cent. The following table presents the percentage in the wines enumerated:—

Côte d'Or,	Nuits rouge, 1846	13.50
id,	Mont-Rachel blanc, 1846	14.00
Yonne,	Ronge d'Avallon, 1834	11.14
—	Blanc pineau chablis, 1842	12.54
Lot,	Cahors rouge, 1811	12.00
—	Cahors blanc, 1811	12.33
Gironde,	Bordeaux rouge, 1841	10.10
—	Sauterne blanc	15.00
Pyrenées Orient,	Banyuls	15.16
Drome,	Hermitage	11.0
Marne,	Sylleri Mousseux	9.11
Madeira, naturel		15.5
Malaga, naturel		15.0
Alicante		15.2

There is no doubt that the alcohol plays an important part in the physiological and hygienic influence of wine, but this influence is modified by many other immediate principles to which attention ought to be paid.

Tannin and the colouring matter of wine come from the coating of the seeds and the husk of the grape. Without direct proof, it is probable that the tannic acid of the grape is the same as of galls. M. Glenard has isolated from red wine two colouring substances which appear to be immediate, definite principles. Acids exist always either in a free state or in the condition of salts, with very decided acid reaction. Cremor tartar is found in wine in the proportion of 2-6 in 1,000. M. Pasteur has discovered that succinic acid is, like alcohol, a constant product of the breaking up of sugar under the influence



of alcoholic ferments. The same is the case with respect to the glycerine, the proportion of which is pretty considerable, and which was confounded, before those beautiful researches, with the so-named extractive matters.

The bases are almost as numerous in wine as acids—they are the same as are constantly found in the living organism. Potassa and soda should be mentioned, which in weak proportion is met with as chlorides, as in the blood and muscles.

The bouquet results from the union of several odorous matters, as alcohol, ethers, aldehyde, essences, and those analogous to what M. Millon terms perfumes. Well then may be understood the inability to approach by imitation the flavour dependent upon such numerous and delicate substances.

When we attempt to estimate the part performed by wine in nutrition, the importance of the association of alcohol with a liquid of decided acidity, not only upon the taste, but in the effects, is apparent. The simultaneous absorption of the acid abates the destructive action of the alcohol upon the economy, and its excess of action upon the nervous system. Tannin and the colouring matters exert an action upon the stomach which, in certain conditions, is favourable. The bouquet, which impresses the taste and smell, is useful, as it is known that very small amounts of sapid articles exert a happy influence upon nutrition.

It is asserted by M. Bouchardat, that when wine is of specific gravity approaching to that of water, it is absorbed less rapidly than brandy, and he remarks that this circumstance is favourable to protracting absorption, and to utilizing the alcohol, at the same time that the destructive effect is moderated. There can be no doubt that dilution renders the alcohol less injurious, and the greater the dilution the less quantity can be introduced; but the fact of a more rapid introduction of brandy than of wine dependent upon its strength, is in opposition to the experiments of Matteucci and Dutrochet, who found that the current, where water and alcohol were concerned, in endosmose, was from the water to the alcohol, so that it would appear that until the alcohol is sufficiently diluted there is a bar to its introduction. We incline to the belief predicated upon these experiments, that the more rapid inebriating effects of a definite quantity of alcohol is promoted by sufficient dilution to promote absorption. It is not necessary that wine or alcohol should be digested; but dilution can take place from the fluids thrown out by the stomach.

From the complexity of inorganic materials entering into the composition of wine, and which, to a certain extent, approximate those of the human organism, it can be understood how serviceable it may be in individuals exhausted by insufficient alimentation; and with respect to the effects of it at different ages, the same remarks are applicable as in the case of alcohol. At any age where there is defect of nutrition it may be profitably employed. M. Bouchardat admits the advantage which the workman may derive from the restricted use of this beverage, whose forces are much exhausted by his labour, but protests against the inordinate use of it, and especially on Sunday. For the sailor wine is preferable to brandy. As an illustration of this fact, he cites two vessels employed in the South Seas, the one French and the other English. In the first, wine was given as a ration, in the other brandy (probably whisky); and while the crew of the French vessel was exempt from scurvy, that of the latter was attacked by it. The explanation is given in the protective properties of the wine containing organic ingredients, especially the salts of potassa.

There are certain morbid tendencies which may be favourably affected by the moderate use of wine, as the glycosuric diathesis; and in marshy countries a free, full diet, with an allowance of this beverage, constitute a powerful preservative. In convalescents where nutrition is impaired, with good diet it is of especial benefit.

The abuse of wine entails the same effects as brandy, although in less degree. The too free use of it at each repast, in which certain persons indulge, cannot be too forcibly reprobated. To be sure there are different idiosyncrasies in this respect. In some persons a single glass produces redness of the face and headache, while with others a pint produces no impression. With this we ought not to be deceived, the repeated excitation of the brain is always pre-

judicial, and it is rare that this kind of stimulation of the brain should be resorted to to develop and augment intelligence. Drunkenness from wine induces less speedy and less profound disturbance of the apparatus of innervation and digestion than that from brandy. The inebriates of the wine-producing countries, where the article is less strong in alcohol, live longer than those from alcohol, and some of them attain advanced age. Dropsy, connected with disease of the heart, is the affection of which they die.

The following classification is given of the wines commonly used in France, the red and the white :—

1. *Wines in which predominates one of the essential principles of wine.*

- |               |   |                                |                              |
|---------------|---|--------------------------------|------------------------------|
| A. Alcoholic  | { | Dry wines . . . .              | Madeira, Marsala.            |
|               |   | Sweet wines . . . .            | Malaga, Banyuls, Lunel.      |
|               |   | De Paille <sup>1</sup> . . . . | Arbois, Hermitage.           |
| B. Astringent | { | With bouquet . . .             | Hermitage.                   |
|               |   | Without bouquet . .            | Cahors.                      |
| C. Acid       | { | With bouquet . . .             | Rhine wine.                  |
|               |   | Without bouquet . .            | Vin de Gouais, d'Argenteuil. |
| D. Mousseux   |   |                                | Champagne.                   |

2. *Mixed or finished wines.*

- |                     |   |                  |                                 |
|---------------------|---|------------------|---------------------------------|
| A. With bouquet.    | { | Burgundy . . . . | Clos-Vougeot, Mont-Rachet.      |
|                     |   | Medoc . . . .    | Chateau-Laroze, Sauterne.       |
|                     |   | Medi . . . .     | Langlade, Saint Georges.        |
| B. Without bouquet. |   |                  | Ordinary Burgundy and Bordeaux. |

M. Bouchardat objects to the division into red and white wines. The first division of alcoholized wines comprehends those of which Madeira and Marsala are the type. As they are delivered by commerce, and are almost always sur-alcoholized, they contain in fact 25 per cent. of alcohol, while fermentation does not develop more than 15 per cent. When administered in small amount they replace brandy, and may be useful to convalescents, old persons, &c.

Sweet, strong wines are also excellent on the same account, and they are equally characterized by a peculiar flavour. Some of them, as Lunel and Banyuls, are the direct product of fermentation; others, as Alicante and Malaga, are produced from the juice concentrated by heat, and are often additionally alcoholized. M. Bouchardat avows his belief that by pursuing the same course, wines of a superior kind to those imported could be procured in France, and which would be equal to the best cordials for the sick and those needing them.

The red Hermitage wines are properly classed among the mixed or finished, but drunk in their early stage, they have a strength which is not agreeable. They can be mixed with the new wines of Gironde so as to give to them greater delicacy, a pleasing aroma, and the property of keeping. This is so well understood by the skilful dealers of Bordeaux that those wines have disappeared from commerce. The grapes furnishing Rhine wines are recommended for cultivation.

The preservation and improvement of wines is a subject of importance, demanding much information, nice observation and practice, which is handed down from person to person. It is well known in the wine cellars that wine works at different periods according to the age of the vine. This fact is based upon an attentive observation of phenomena; it is not a fanciful idea. Vitality in wine may lie dormant for several months, and become manifest sooner or later under an elevation of temperature or other causes which cannot be now entered upon. The first manifestation of this vitality is the alcoholic fermentation due to the decomposition of the sugars (glucose, sugar of inulin), and the formation of alcoholic and carbonic acid, succinic acid and glycerine, under the influence of the alcoholic ferment. The second change is the butyro-acetic fermentation, which consists in a conversion of the tartaric acid, in addition to the alcohol, under the effects of a special living organized ferment. The third is the acetic fermentation, which, as M. Pasteur has demonstrated, is equally established by the action of a living organized ferment.

<sup>1</sup> Wine prepared from dried grapes preserved in straw.



At each new decomposition the equilibrium is deranged in so complex a fluid, matters in solution are precipitated, and others which have been precipitated are redissolved. It is by a series of phenomena more complicated than has been indicated, which may be latent or violent, that wines attain perfection, or are altered and undergo such change as to indicate that they are "diseased." The *bouquet* appears with time. It is necessary for it to appear, that the wines should be preserved for two, three, or more years in wood, whence it is removed to bottles, or it may be that months or a year elapse before the deposit takes place in bottles and the bouquet is formed. Acids of the butyric series are developed during the decomposition of the tartaric acid under the influence of one or several ferments, and ethereal products are generated. The production of the bouquet always coincides with the deposit in the bottles of a substance which consists of organized globules, different in the different wines. An elevated temperature hastens the appearance of the bouquet, but it also favours the development of those diverse ferments which render the wine diseased. In keeping wines there are two requisites—the avoidance of an elevated temperature, and the exclusion of the atmosphere.

Among the diseases of wine may be mentioned the *grease*, which especially attacks the white wines. They then become stringy, like the white of egg; there is developed an organic substance which retains the fluid in its meshes, and which is at the expense of the sugar remaining in the wine; mannite is one of the results. This effect may be counteracted by tannin, and to prevent such transformation, or to correct it, tannin or nutgalls are used. M. Bouchardat informs us that he has seen wines effected by grease, when placed in cool cellars correct the disease by the deposition of this matter, and recover spontaneously. When wine becomes bitter the disease is incurable, but mixture may render it less disagreeable. Wines which are termed "pricked," which is the first stage of acid fermentation, are used to procure alcohol by distillation. When the acetous fermentation has advanced, the wine is turned over to the vinegar maker.

M. Bouchardat declares that the falsifications of wine are much less numerous, or much more simple, than is generally believed. Most frequently the practice is confined to mixing weak wines with the stronger, and sometimes the least conscientious dealer adds water. To determine this latter fraud, the amount of solid matter left by evaporation of a given quantity is an index of dilution. M. Bouchardat suggests a proceeding which he used to detect the adulteration with water in a case which presented itself to him. It is the addition of the solution of oxalate of ammonia to wine so as to throw down a precipitate, or render cloudy the specimen, after it has been decolorized by chlorine. This depends upon the detection of the lime-salts held by the diluted wine. In old wine all of these salts have been deposited; but in recent wine, which is ordinarily mixed, they still exist in the liquid. Sometimes wines are plastered; that is, the sulphate of lime is added—an old custom which has been handed down from the Greeks. The effect of this, according to the author, is to substitute the bisulphate of potassa for cremor tartar, and to overcome some of the difficulty of preserving wine in warm locations.

The next alcoholic beverage referred to by M. Bouchardat is cider. This is produced in the north of France, and especially in Normandy. Its use is traced back as far as the Roman occupation of Gaul. In 587, it is known, that perry was the drink of the saintly Radegonde, Queen of France. In the eighth century it was popular, and Charlemagne, in attending to his domains, regarded with extra favour those managers who understood the making of cider.

Under the head of the "Abuse of Cider" it is stated that the excess of malic and carbonic acids has appeared to determine gastralgia. It is a drink which is very grateful to glycosuric patients; but the abuse, and sometimes the use even, is prejudicial to such diseases. When this drink produces inconveniences, it is attributable to bad preservation. There may be formed fungi, or mucadineous productions, which may be poisonous, and induce or predispose to diseases; or there may be a transformation of the malic acid to butyric.

Our author alludes to the fact that, in his course upon hygiene, he has attributed that fatal disease—miliary sweat—to alimentary drinks, which had undergone change from mal-preservation.



Under the head of "Malt Liquors" it is remarked, that an excess in them promotes obesity, and in connection, the diminution of the forces of life. Their abuse is further placed among the predisposing causes of glycosuria. In the formation of malt liquors, M. Bouchardat reprobates the practice of substituting any other bitter substance for the hop; the articles employed being gentian, menyanthes, lichen islandicus, quassia, picric acid or bitter of Welter, &c.

With respect to the introduction of strychnia, although avowing a belief in its use, no proof, except hearsay, is presented. This subject has been much agitated in this country, and has been placed at rest by the investigations that have been made. In fact the use of so deadly a poison is hardly possible without accident or lamentable occurrences. That *cocculus indicus* is added is beyond doubt, which, like hops, prevents a second fermentation. "This dangerous sophistication is so prevalent in England," says Mr. Koop, "that some authors of special treatises have given injunctions upon the subject. It is recommended not to add more than 1500 grammes of *cocculus indicus* for 50 bushels of malt.

Under the head of "Strong Liquors" some interesting statements will be found. Our limits forbid, however, our dwelling too long upon the information which precedes the exposition of the physiological and pathological effects which conclude these papers, and of which we desire to present an analysis. Before proceeding to this, there are some points which may be noticed. It may be said with truth that the "Eaux de vie de vin," or, as they are commonly called, "brandies," are the most highly esteemed of the strong liquors. Those of France are not excelled by any others in the world. That of Cognac may, for example, be cited as most remarkable for the bouquet. This has induced imitation by adding to rectified alcohol, diluted with water, either ethers or other odorous matters, but with little success, as the fabrication is easily detected by the experienced palate. A fraud more difficult to detect consists in distilling wine which produces this marked species of brandy with inferior brandy, which thus to a less degree is impregnated with the perfume. Honest distillers are justly indignant at this unfortunate practice, which has for its infallible result the discredit of their products. An association has therefore been formed for the security of their business and protection against imposition. It is the stock of grapes called *Folle Blanche*, furnishing a wine of middling quality, which furnishes this fine quality of brandy.

The brandy of Montpellier is obtained by distilling the common wines of Languedoc and of Provence; the stock of grapes yielding them are designated as *Teret Bouvet* and *Aramon*. It is of good quality. That of Armagnac is also esteemed.

The liquor called *Absinthe* is elaborate in composition. We are informed by M. Bouchardat that it is made by distilling alcohol from a mixture with the leaves of absinthe, major and minor, angelica root, calamus, dictamnus of Crete, or organum, star anise, &c. It is coloured with several articles, and sometimes the salts of copper are improperly used for this purpose. The superior qualities of the article contain nothing but the alcohol and volatile oils. It is a powerfully stimulating drink, but at the same time attended with pernicious effects. One of these is to produce dryness of the throat, which incites to new libations, which ultimately induce excessive indulgence and ruin. M. Bouchardat is of opinion that absinthe more predisposes to delirium than pure alcohol, and that the continuance of it more frequently produces chronic delirium and progressive general paralysis. His conclusion from observation is, that absinthe occupies the first rank among dangerous drinks.

The last portion of the essay is occupied with the effects induced by the abuse of alcoholic liquors, or, in other words, the divers disorders of the economy which are comprehended by the term *chronic alcoholism*. Under this head are placed the affections which arise from the prolonged use of strong drink or habitual intoxication. The effects may be arranged under the following heads:—

1. *Digestion*.—The mouth of persons addicted ordinarily to alcohol is dry, especially in the morning upon rising, the tongue is thick and sometimes cleft. Anorexia is a common effect. Drunkards suffer uneasiness in the epigastrium,

have an invincible distaste for solid aliment, and, perhaps, vomiting, with the discharge from the stomach of a thready fluid composed of glairy mucosities. It is easy to understand how absorption from the stomach and bowels becomes sluggish in this class of persons. Diluted alcohol is easily absorbed, but this is not the case for normal aliment. The alimentary fluids and nutriment remain in the stomach and undergo putrefaction, whereby the breath becomes tainted, and digestion is permanently deranged. The stomach at first stimulated by the presence of alcohol pours forth an abundant secretion which is too dilute for digestion, the mucus is augmented, and there is induced the first departure from healthy functional action. In time, however, when irritation has been established of a chronic character, or subacute inflammation has been produced, the reverse of this, we think, is the case, and there is deficiency of other than thick morbid secretion, which interferes with absorption irrespective of the altered state of the mucous membrane. In this condition morbid secretions are prone to take place, even hemorrhagic in character.

Upon looking into the state of the alimentary canal we observe that drunkards are subject to flatulence, to colic, and that constipation is a usual concomitant, or there may be diarrhoea alternating with constipation, a usual result of an engorged condition of the liver. That disease of the liver should be a usual attendant, can be understood when it is recollected that this organ is the first to receive and retain the anomalous fluid. The disease of the liver may be associated with hypertrophy, and fatty degeneration with enlargement. On this material being absorbed induration may be produced.

In northern countries cirrhosis of the liver is the common result of the abuse of alcohol. In the middle or temperate regions, M. Bouchardat states that bilious fever and hepatitis are sequences, and in warm countries there is a proneness to dysentery. Considerable diminution of healthy nutritive aliment will lead to general wasting of the economy, and hence the dropsies which are a frequent cause of death. The course which nutrition takes under the use of alcohol, however, may be stated to be, in the first place, that of exaggeration; the individuals addicted to drink become fuller in habit, with injection of the skin and redness of the face. As the organs become diseased, with the deposit of fat in them their functional actions become embarrassed, and then, with depraved digestion, and the abstraction of proper elements of reparation, the fluids liquefy, the blood becomes watery, and with impeded circulation existing in the heart or in the liver, effusions general or local are inevitable. The first augmentation of size is from the increase of fatty deposit in all the tissues; the second appearance of fulness is from serous effusion. This latter condition in common language is known as the "white bloat."

2. *Apparatus of Innervation.*—The manifestations of derangement of this apparatus are as varied as interesting. They have been well elaborated by the labours of the Swedish physician, Dr. Magnus Hus, and are presented in a thesis of remarkable merit by M. V. Racle, upon alcoholism. They pertain to modifications of sensibility, of movement, and of intelligence, so constantly observed in habitual inebriates. Feebleness of muscular force is generally predominant. Generally this state does not actually attain paralysis. It differs from the paralysis that ensues upon apoplexy. It advances gradually from the periphery to the centres. It has been described under the names of chronic meningitis and tabes dorsalis, and, in some respects, resembles the general palsy of the insane, a general progressive palsy. After a certain length of time the extremities, especially the superior, commence to become weak; sleep is interrupted by dreams. At first the ends of the fingers become enfeebled, the person can but imperfectly close the hand and permits objects he has grasped to escape from it. This weakness extends to the forearm, to the arm, and the shoulder. It is soon exhibited in the lower extremities, the gait becoming tottering and uncertain, and sometimes it extends to the muscles of the back, the patient becoming more and more weakened and incapable of maintaining any upright position. The power of voluntary movement is not actually wanting, but there is an indisposition to move because a strong effort is necessary. He cannot feed himself, and has to be fed. This state is little removed from general paralysis. There may be conjoined paralysis of the bladder, of the large intestine,



of the œsophagus, and even of the tongue, and there may be subsultus tendinum and cramps. This form is not invariable; occasionally accompanying symptoms are lighter and marked by anæsthesia, a muscular weakness, which comes on slowly, or is brought on in consequence of an acute attack of disease, which may be delirium tremens, acute rheumatism, erysipelas, or an injury. If the patient then indulges in no excess it may continue moderate, but if there be a continuance of bad habits it may assume the most intense form.

If paralysis of the bladder or of the intestines has occurred, the expectation is slight of any notable amelioration of the condition.

These symptoms pertaining to the muscular apparatus are accompanied, preceded, or followed by other morbid states which contribute still further to characterize this form. The exterior of the patient is altered, his countenance indicates hebetude and slothfulness, the white of the eye has a yellow tinge, the skin becomes dry and yellow, emaciation takes place, and the muscles become soft and flabby.

With respect to the intellectual faculties a settled condition of hebetude overwhelms them, the memory is weakened, sleep is interrupted and disturbed by frightful dreams, or hallucinations of sight and hearing, or a persistent true chronic delirium may exist.

"Who drinks, alas! but to forget, nor sees  
That melancholy, sloth, severe disease,  
Memory confused, and interrupted thought,  
Death's harbingers, are latent in the draught,  
And, in the flowers that wreath the sparkling bowl,  
Fell adders hiss, and poisonous serpents roll."

In connection with the paralytic condition that has been described, there exists a diminution of sensibility which is a marked symptom. It commences with a bluntness of tactile perception, but extends to all points. Indeed, a permanent anæsthetic influence pervades the entire system, and, what is worthy of note, the natural propensities are obliterated. The venereal passion, as we have frequently noticed, disappears, as well in females as males, and, happily, procreation is thus prevented.

In addition to the features of the picture that has been drawn there are some symptoms which although not so frequently present should not be omitted. Instead of a diminution of sensibility there may be an augmentation of it, or a species of hyperæsthesia. While one condition may exist in a part the other may be present in a different portion; thus there may be loss of sensibility in the toes, but an exaggeration of it in the sole of the foot. Sensations of formication, glacial cold, alternating with burning heat in the limbs or feet with localized neuralgia, are sometimes present. Another manifestation of alcoholism is found in the tendency to convulsive attacks. With drunkards the occurrence of fits is not unusual, and this tendency may assume the epileptic form. Indeed, epilepsy and, as the record of insane asylums indicate, mania, are the melancholy consequence of intemperance. The subject of the connection between intemperance and crime is one which has much exercised the thoughts of the philanthropist; it should also attract the attention of the legislator to a greater extent than it has hitherto done. The facilities of indulgence are scattered broadcast throughout the land, and from the examination of our legislative enactments, on the inspection of the social relations and practices which are prevalent, we are led to the conclusion that inducements to the abuse of alcohol are afforded liberally by the first, and allurements of the most captivating kind are presented by the latter. Viewed in whatever light it may, as an injury to the State and to society from the crimes that may be perpetrated, or as a canker preying upon and destroying the holy affections of the family circle, it must be regarded as a baneful evil, with which morality and religion have been unsuccessful in the struggle, and against which medical science has in vain suggested remedies. With respect to the effects upon civilization we may conclude this notice by quoting the words of M. Bouchardat: "That the progress of humanity will not only be checked by addiction to the abuse of ardent spirits, but there is eminent danger of its march becoming retrograde."

J. C.



ART. XXVI.—*The Use and Abuse of Tobacco.*—By JOHN LIZARS, late Professor of Surgery to the Royal College of Surgery, etc. etc. From the eighth Edinburgh edition. 12mo. pp. 138. Philadelphia: Lindsay & Blakiston, 1859.

To determine with anything approaching to accuracy the influence upon the human organism of the habitual use of tobacco, whether in snuffing, smoking, or chewing, will require a far more extended and carefully conducted series of observations than we now possess. In the brochure before us, Mr. Lizars has presented, it is true, an imposing array of testimony, which, at first sight, would seem to prove very conclusively that the habitual use of tobacco is not only productive of some of the most serious and intractable maladies to which man is liable, but that, even when it does not give rise to actual disease, it invariably undermines the vigour of the constitution of those who are addicted to it, destroys their memory, hearing, and vision, and is the cause often of emasculation and cowardice. When, however, we come to examine the quality of the evidence thus adduced, and subject it to a careful analysis, it will be found that much of it consists of mere opinion, based upon one-sided and partial observations, and of isolated facts which admit of an easy explanation very different from that which Mr. Lizars is inclined to give to them.

We can scarcely be required to receive as valid testimony, in respect to the effects of the habitual use of tobacco, the statement of "Dr. Budget," in his treatise on tobacco, quoted by Mr. Lizars, on the 41st page of his essay—which is, that in America "it is no uncommon circumstance to hear of inquests on the bodies of smokers, especially youths; the ordinary verdict being '*died from extreme tobacco smoking!*'" Nor a whit more valid is the following libel upon the American people, gravely quoted by Mr. Lizars, on his 62d page, as a pathological fact, from the *London Spectator* of July 5, 1856: "It is in startling contrast with our ordinary train of thought about the United States, to hear it even whispered as a possibility that the race of men which inhabit that country is undergoing a process of physical and moral degeneration; that the symptoms which we have been accustomed to consider as evidences of growth, are real proofs of decay; that the people are, like medlars, rotten before they are ripe, and that a premature senility is the true characteristic of the great Anglo-Celtic Republic of the West; that such a theory should have been started gives one a shock which does not pass off when the facts upon which it professes to rest are calmly considered. It is said, for instance, that the bulk of Americans live thoroughly unwholesome lives; consume inordinate quantities of spirituous liquor from youth upwards, and at all hours of the day, *smoke and chew tobacco* to excess; eating greedily, and giving themselves no time to digest their food; always in a bustle and excitement; enjoying neither quiet nor rational recreation, nor domestic peace. And how few Americans has any Englishman known, of whom he could say that they were genial or happy! What an *anxious, nervous, haggard expression of face, is that by which we instinctively recognize a Yankee everywhere!* How completely the manners and countenance, and figure of the typical Yankee answers to the account of the *usual life* of the people. What if the bad habits of men and women, acting with a *climate which tends to exhaust vitality*, should really, in a few generations, have produced a palpable inferiority of physique? The positive assertion of this degeneration would, indeed, be most unphilosophic, on a basis of facts such as are patent to common observation; but that *these facts are patent* is sufficient to excite the alarm and sharpen the self-watchfulness of all classes of Americans, who can look forward to the tremendous consequences of a degradation of the national nerve and muscle through intemperance and bad habits of living."

Such is a specimen of one class of facts upon which Mr. Lizars bases his verdict against the habitual use of tobacco. He would seem to estimate as alike in value all denunciations of the "foul weed," as King James denominates it, from whatever source they emanate. He has been very industrious certainly in bringing together the opinions which have been uttered against tobacco, and yet he has overlooked not a few more pointed even than those he has collected, and bearing the appearance of much greater exactitude than do many of them.

We would not for a moment be considered as advocating the use of tobacco in any form, or to any extent—in moderation or to excess. It must be manifest to every one who has made himself acquainted with the active toxicological properties of tobacco, that it cannot be introduced into the healthy living organism, even in very minute quantities, without deleterious consequences resulting; and that these must necessarily be more decided and serious when the article is habitually indulged in. Consequences which, though they may be reduced in speediness of occurrence, and in their intensity, by certain processes to which the tobacco is subjected to fit it for man's use, nevertheless sooner or later make their appearance—effectually subjugating their prey before he is at all aware that his health and strength are completely and too often irrecoverably gone. The exact nature and extent of the deleterious influences which tobacco exercises over its votaries have never yet been carefully investigated, care being taken to exclude all the more prominent sources of error. There has been as much error committed by those who exaggerate the baneful effects of the habitual use of tobacco in chewing, snuffing, and smoking, as by those who, on the other hand, have endeavoured, in our day, to show that tobacco habitually but moderately used is absolutely beneficial to man, by retarding the metamorphosis of his tissues, and thus enabling him to bear up for a time under the depressing effects of deficient diet, or the wear and tear of violent and prolonged muscular exertion. Neither verdict is the true one.

To prove that man may live healthful and vigorous, and bear up under fatigue and privation without the aid of tobacco in any form or quantity, there can be adduced an overabundant mass of positive and indisputable testimony; while, on the other hand, it must be very evident that, in the production of much of the evil that has been attributed to the habitual use of tobacco, it constitutes only one of several, perhaps many, morbid causes. They who are in the constant habit of excessive indulgence in the use of tobacco, by smoking, chewing, or snuffing, most commonly belong to a class of the community by whom the laws of health are not the most implicitly observed, and who incur disease by exposing themselves habitually to other morbid causes than simply an indulgence in the use of tobacco.

We are fully persuaded of the truth of the following general conclusions to which Mr. Lizars has arrived in respect to the effects of one of the most common forms in which tobacco is used in this country:—

“1st. That excessive *smoking*, long persisted in, is injurious to man in the highest degree—physically, mentally, and morally.

“2d. That the commencement of *smoking in early life*, and indulgence in the practice *early in the day*, cannot be too strongly condemned, as leading to most pernicious effects on the constitution.

“3d. That smoking even in what is called a moderate degree is, to say the very least of it, indirectly injurious, more especially to the young; because, it is not denied, it acts as an inducement to drinking—thus becoming the source of intemperance, and all its accompanying evils. It is notorious that the practices are, almost without exception, inseparably associated.”

Although these conclusions relate only to the practice of tobacco smoking, they will apply also to the use of the article in chewing and snuffing. Either of the latter practices, commenced early in life and largely indulged in, is productive of most pernicious results—Dyspepsia, nervous tremors, etc., are of common occurrence in tobacco chewers, while carcinoma of the stomach has in repeated instances been traced to the use of tobacco in the form of snuff.

As to the direct agency of the habitual use of tobacco in the production of some of the maladies which are attributed to it by the authorities quoted by Mr. Lizars, we are still without the amount and kind of evidence necessary to establish the fact beyond any reasonable doubt. That it often acts as a co-agent in the establishment of certain morbid states and conditions is, we think, a very well established fact.

Upon a review of all the well attested observations that have been adduced in reference to “the use and abuse of tobacco,” we can very fully indorse the advice which constitutes the motto of the treatise before us: “Snuffing, smoking, and chewing tobacco are bad habits, and we advise any gentleman, who is not hopelessly abandoned to either, to give it up.”

D. F. C.



# QUARTERLY SUMMARY

OF THE

## IMPROVEMENTS AND DISCOVERIES

IN THE

### MEDICAL SCIENCES.

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#### ANATOMY AND PHYSIOLOGY.

1. *Spontaneous Generation*.—JOLY and MUSSET think that the following experiment leaves but little doubt as to the existence of spontaneous generation. They boiled in ordinary water the cæcum of two sheep, along with pieces of meat, during one hour. The cæcums were then filled with that same water when still very hot, and a piece of the boiled meat was introduced into each. To secure a supply of well-filtered air, three-quarters of the fluid was displaced by purified hydrogen gas; the cæcums were shut by means of firmly-tied ligatures and were put into water. After several hours, diffusion had changed the contents of the gut. The hydrogen was replaced by filtered air. At the end of twelve days, during which the preparations were kept at a temperature varying from 3° to 25° C., the bags were opened, and were found to contain a number of very lively infusoria.

SCHRÖDER, on the other hand, after numerous careful experiments, arrives at the following conclusions: 1. All vegetable and animal forms derive their origin from other living vegetable or animal beings. *Omne vivum ex vivo*. 2. Germs which have been conveyed to a spot through the medium of the air are always the origin of the series of specific products of fermentation and putrefaction which is developed there. Such is most certainly the case with germs of mould, with the ferments of wine, milk, and urine. 3. Vegetable and animal matter in which all germs have been destroyed by boiling, and which, when hot, has been shut off from the direct influence of the external air by means of cotton-wool, remains perfectly free from mould, fermentation, or putrefaction. The germs which would be supplied by the air are arrested in its passage through the cotton-wool. 4. The germs of most vegetable and animal substances are destroyed by boiling during a short time at a temperature of 100° C. 5. But milk, yolk, and meat contain germs which are not thus killed. Boiling at a higher temperature, under higher pressure, or long-continued boiling at 100°, will, however, always suffice to destroy these germs also. 6. The germs in milk, in yolk, and in meat, after having been boiled at a temperature of 100° C. during a short time, are still capable of being developed into the specific ferment of putrefaction, and sometimes also those in yolk and meat, at least, into long and indolent vibriones. 7. The specific ferment of putrefaction is of an animal nature. It develops and multiplies at the expense of albuminous compounds, but does not multiply under conditions which afford all the requisites for vegetable growth.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Comptes Rendus*, Jan. 1861, and *Annal. der Chem. und Pharm.*, vol. cxvii. p. 273.

2. *Researches on the Physiology and Pathology of the Cerebellum*.—MM. LEVEN and OLLIVIER endeavoured to gain accurate information on the functions



of the cerebellum by puncturing that organ with a strong steel needle. The experiments were performed on guinea-pigs, and only such cases were relied upon in which no hemorrhage took place after the operation. If in such cases the injury was entirely confined to the cerebellum, the animals recovered completely in seven to fourteen days; but if, in addition, the medulla oblongata was wounded, death was sure to follow within twenty-four to forty-eight hours. In simple lesion of the cerebellum, the only and invariable changes observed were such as occurred in the functions of the motory apparatus. In most instances in which one lobe only was punctured, the animal was drawn with an irresistible force towards the injured side. It at first revolved with great rapidity round its axis. These movements then got slower by degrees, till at last the creature succeeded in finding rest by lying down on the punctured side. This position was anxiously retained, as if the animal was all the while conscious of the impelling force. The writers explain the yielding to this one-sided impulse by assuming that the muscles of the body, on the side opposite to the wounded lobe, are to some extent paralyzed. Strabismus was a constant symptom of the injury.—*Brit. and For. Med.-Chirurg. Rev.*, from *Comptes Rendus*, vol. lv., 1862.

3. *The Specifically-Acting Principles of the Natural and Artificial Pancreatic Juice.*—The researches of ALEX. DANILEWSKY led to the following results: 1. The natural and artificial juice of the pancreas shows, outside the organism, three specific physiological reactions: (a) it changes starch into sugar; (b) it dissolves in a characteristic manner coagulated albumen; (c) it reduces the neutral fats into their corresponding acids and glycerine. 2. Each of these reactions depends on a specific substance. 3. Two of these substances, the two, namely, which effect the first and second reaction, can be gained in a more or less pure form. 4. The existence of a third substance which effects the third physiological reaction of the juice is highly probable. 5. The specific substance which corresponds to the first reaction, acts in a neutral, alkaline, and acid solution, but with different degrees of intensity. 6. The digestion of fibrin in normal, natural, and artificial pancreatic juice, and in a solution of the isolated substance which corresponds to the second reaction, has nothing in common with a process of putrefaction, but is effected by a physiological property of the juice, and more especially of the isolated specific substance. 7. This last-named substance exerts its power of digesting fibrin only in neutral and alkaline solutions. 8. The amount of free alkali contained in the solution of the pure specific substance has a great influence on digestion. 9. A surplus of free alkali and the presence of free hydrochloric acid do prevent the digestion of fibrin in a solution of the specific substance. Danilewsky states, further, that the first and second specific substances are not pure albuminates, but that they belong to the colloidal matters.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Virchow's Archiv*, vol. xxv. p. 279.

4. *Action of Electricity in the Metamorphosis of Organic Substances.*—Herr VAN DEEN has for some time carried on a series of researches with the view of ascertaining whether the chemical changes which take place in the animal body can be produced artificially by subjecting the materials to be changed to the influence of an electrical current. He has therefore submitted to a continuous current various substances which form part of the body or are used as food: viz., serum of blood, milk, urine, albumen of eggs, biliary and urinary acids, glycin, starch, dextrin, sugar, glycerin, etc. He here relates especially the result of his experiments on uric acid. A little uric acid (which is ascertained to be free from urea) is mixed up in a large quantity of water, so that a part is dissolved. The apparatus employed consists of two elements of Bunsen's pile, with platinum electrodes, which are immersed (being separated by a piece of glass) in the vessel containing the substance. In ten or fifteen minutes, even though the current has been weak, urea can be detected. If warm water be added, the action becomes more rapid and intense. The quantity of urea formed is in direct relation to the time during which the current has acted on the uric acid. If the current were continued for a sufficient length of time, he found distinct crystals of urea, the nature of which he confirmed by forming nitrate of

urea. He believes that carbonic and oxalic acids are formed with the urea, but is not positive on this point, although he sometimes found crystals resembling those of oxalate of urea. (*Archiv. für die Holland. Beiträge zur Natur- und Heilk.*, Band 3, Heft 2, 1862.)

In the same number is contained a summary of the results of Van Deen's experiments. He has obtained by means of the continuous current—1, from *albumen*; cells resembling cytoïd corpuscles; a substance insoluble in water (fibrin?); urea; allantoin; and uric acid (very probably); 2, from *mucus*; morphological elements; uric acid; and urea: 3, from *uric acid*; urea and allantoin: 4, from *glycin*; urea: 5, from *thein*, urea: 6, from *glycerine*; sugar and lactic acid: 7, from *inosite*; lactic acid: 8, from the *lactate*, *formiate*, *acetate*, and *butyrate of lime*; carbonate of lime and water: 9, from *tartrate of lime*; carbonate and oxalate of lime: 10, from *gum*; carbonate and oxalate of lime, and water: 11, from *mannite*; sugar: 12, from *amygdalin*; sugar; hydrocyanic acid; and probably volatile oil of almonds: 13, from *tannic acid*; sugar and gallic acid: 14, from *salicin*; sugar and saligenin or saliretin. Electricity has no influence on starch, dextrin, glycogen, or sugar. He has also subjected various substances to the action of ozone, with the following results: 1, from *uric acid*; urea and allantoin: 2, from *glycin*; urea: 3, from *glycerine*; sugar, and very probably lactic acid. Ozone appears to have influence on starch. Nitric acid and heat produce sugar from starch, the *corpora amylacea*, mannite and gum. The fresh pancreas of a dog, whether the reaction was or was not acid, produced fatty acids, glycerine and sugar from butter; and sugar from glycerine. At a temperature of 104° Fahr. calves' liver produced glycogen and sugar from glycerine, sugar from starch, and, at the ordinary temperature sugar from dextrin.—*Brit. Med. Journ.*, Jan. 17, 1863.

5. *Effects of the Preparations of Iron on the Tissue-change.*—Dr. PAKOWSKY, of St. Petersburg, has directed particular attention to the effects of iron on the tissue change, in patients at the hospitals at St. Petersburg, who were taking that article for different diseases. He measured daily in all the patients the temperature of the body, the amount of the food consumed, the amount of the excrements, and of the urine, with the specific gravity of the latter, and the amount of chlorides and urea it contained.

The following are his conclusions:—

1. The temperature of the body is positively heightened by the use of these preparations.

2. This increase results in some cases very soon; in one case it occurred after five hours; in others slower, and in one case a long interval and after a large dose.

3. The temperature, the morbidly lowered as well as normal one, is increased; and if it ceases to rise after reaching a certain height, having taking a certain quantity of the iron, the temperature will rise more by increase of the dose.

4. Several days after using it the pulse rises also, although not in all cases.

5. Very soon, and consequent upon the increase of the temperature, the daily amount of urea in the urine increases.

6. The use of iron increases the weight of the body.

7. Every preparation of iron produces the same effect, and a change in the different preparation in the same patient does not alter the result.

8. The diuretic effect of citrate of iron was very distinct in two cases, but was wanting in three under the same conditions.

9. In all cases where iron was used no constipation of the bowels took place, except a slight one after iodide and lactate of iron. It was borne well, and in large doses, by the digestive apparatus (nine grains pyrophosphate of iron, and fifteen grains *ferrum hydragenio reductum*).

10. Dropsical transudations in the subcutaneous cellular tissue were resorbed by the use of iron, even in patients with insufficiency of the mitral valve, and reappeared after stopping with the remedy.

11. The increase of the heart's impulse and the dyspnoea in patients with organic cardiac diseases disappeared even in cases in which digitalis had done nothing.



12. After the normal temperature of the body had been raised by the use of iron, it lasted a considerable time after stopping with its use before returning to its normal condition; whilst the morbid lowered temperature rose quickly by the use of iron, it fell just as quickly by stopping with its use—at least, where the other pathological symptoms continued, and where consequently the cause of the low temperature was not cured.

Referring to these facts, the Doctor lays down the following maxims: Taking into consideration that the temperature of the body and the quantity of urea in the urine is increased by the use of iron, that the œdematous condition disappears and the weight of the body is augmented, we are fully justified in ascribing to the iron a nutritive power. The increase of temperature indicates a stronger tissue-change, for this is constant, and accompanied by other symptoms indicating a heightened nutrition. How this is brought about it is difficult to say. Increase of the blood quantum or of the blood corpuscles cannot be the cause; both increase very slowly, whilst the change of tissue augments very quickly. Neither can the increase of the pulse explain the elevated temperature, as the first succeeds the latter. The respiration is not altered by the iron, hence can not have an influence upon the temperature.

According to Dr. Pakrowsky, we have, therefore, to look for the effect of iron in the finest arterial and capillary system, one of the most important places of nutrition, and the growth of the tissue and organs, and so much more, as the disappearance of dropsical transudations in the subcutaneous cellular tissue after the use of iron, points to that system. The most probable is the supposition that the iron acts upon the contractile elements of the finest arterial branches, which must have, without doubt, a high and important influence upon the capillary circulation, and, namely, upon the degree of the tonics, *i. e.*, the degree of tension of the walls of these ramifications. The iron must consequently alter the conditions of the diffusion of the elements composing the tissue and organs. Only in this way does it seem possible to explain the quick effect of iron upon nutrition and the resorption and the œdematous transudations.—*Cincinnati Lancet and Observer*, July, 1862, from *Virchow's Archiv*, xxii., 1861.

6. *Experiments on the Influence of Ozonized Air upon Animals.*—Dr. W. W. IRELAND relates (*Edinburgh Med. Journ.*, Feb. 1863) some carefully performed experiments instituted to determine the influence of ozonized air upon animals. The following are his conclusions:—

1. Ozonized air accelerates the respiration, and, we may infer, the circulation.
2. Ozonized air excites the nervous system.
3. Ozonized air promotes the coagulability of the blood, probably by increasing its fibrin. In the blood, however, ozone loses its peculiar properties, probably entering into combination with some of the constituents of the circulating fluid.
4. Animals can be subjected to the influence of a considerable proportion of ozone in the air for hours without permanent injury; but in the end ozone produces effects which may continue after its withdrawal and destroy life.

## MATERIA MEDICA AND PHARMACY.

7. *Albuminate of Iron and Soda as a Therapeutic Agent.*—M. ANGELICO FABRI says that simple contact, at the ordinary temperature of the atmosphere, of white of egg with a salt of iron and soda, is capable of instantly producing a soluble albuminate of iron and soda, or an albuminferate of the alkaline base. The chemical combination of this compound is such that it is not altered by the yellow ferrocyanide of potassium, the most delicate test of the salts of iron, unless a few drops of acid—as, for example, hydrochloric—be previously added to the soluble albuminate, thus proving that this decomposition cannot be

affected by the agency of the alkalies, but only by some acids, since the potassium of the cyanide is not able to displace the oxide of iron, becoming oxidized at its expense, and setting the metal free, as occurs with the other ferruginous preparations. Considering that we find in the blood albumen, soda in excess, and iron, and having shown how these three bodies, by simple direct contact, form a soluble salt, the chemical combination of which is so powerful that it is not destroyed by the most delicate reagent, may we not fairly infer that the iron exists in the blood as an albuminate of iron and soda? and would it not, therefore, be reasonable to administer iron in the various diseases in which it is prescribed, principally in reference to the state of the sanguineous system, in the form of albuminate, as that in which nature itself has placed it within our organism—one of the products, so to speak, on which our life depends? Physicians have been long puzzled, and are still at a loss, how to administer iron, a valuable remedy, in the manner most suitable to the internal organism; hence the great number of preparations of this metal. Some object to its saline combination with mineral acids, on the ground that these are inorganic, and they prefer giving it in the metallic or oxidized state, leaving the acids of the stomach to form with it compounds which may be carried into the circulation. Others, unwilling to run the risk of having the greater part of the iron—little or not at all acted upon—expelled with the feces, prescribe it in the same state, but combined with organic vegetable acids; hence we have the malate, tannate, citrate, etc., of iron. Others, still more scrupulous, wish to have it united to acids of an animal nature, and prefer the lactate, the cyanide, etc.; M. Fabri would recommend its employment in the state of albuminate of iron and soda.—*Chemical News*.

8. *Arsenite of Caffeine and Tanno-Arsenic Acid used as Antiperiodics*.—M. GASTINEL, Professor at the School of Medicine of Cairo, has presented to the Egyptian Institute two new arsenical compounds—viz., arseniate of caffeine and tanno-arsenic acid, both perfectly crystallized, and having a well-defined chemical constitution. M. SCHNEFF, sanitary physician at Alexandria, has lately studied the therapeutical action of these two compounds, and the following are some of the cases which he has recorded. The first case was that of a man, forty-five years old, who had just had two paroxysms of fever. A cathartic and emetic were first given, and produced vomiting and purging; then on the next morning he took twenty centigrammes of tanno-arsenic acid in some water, in doses of one centigramme every quarter of an hour. This was on the day when the paroxysm was expected to return, but it was almost entirely absent, the patient complaining, however, of a little frontal headache. The dose was repeated on the two following days, and there was no return of the fever, and after a short time the patient entirely recovered. In another case the patient was a man about forty years old, attacked with a tertian fever. On the day when the fever was absent he took twenty centigrammes of tanno-arsenic acid. The paroxysm did not return on the following day, and the arsenical compound was continued for two days longer. The patient complained of loss of appetite for a few days, but soon recovered entirely. The third case was that of a man fifty years old, suffering from a quotidian fever. The first attack surprised him suddenly in a violent manner, and was attended with great prostration. The next day an emetic was administered, but the paroxysm returned. After the remission, on the third day, twenty centigrammes of the tanno-arsenic acid were given, and the paroxysm did not return, although some headache remained, with wandering pains in the stomach. Twenty centigrammes more were given, and the fever never reappeared, but there remained a prolonged dislike for food, and a painful sensation at the epigastrium. Gradually, however, the appetite returned, and the man became quite well.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Gazette des Hôpitaux*, Jan. 1862.

9. *Action of Digitalis*.—Dr. FULLER, in his recent work on "Diseases of the Chest," asserts that the general notion that digitalis exercises a depressing influence over the action of the heart, and therefore leads to accumulation and



coagulation of the blood in its cavities, if not actual paralysis of its muscular structure, is erroneous. On the contrary, he affirms that digitalis stimulates the muscular fibres of the heart, and augments the contractility of the capillaries; that when it kills, it is not by paralysis, but by tonic contraction and spasm of the heart; that, such being the case, it is a valuable remedy in dilatation, and dangerous only when administered in hypertrophy. The grounds given by Dr. Fuller for these opinions are those stated by the author (p. 592):—

“1st. During many years, I have observed that the cases of heart disease most benefited by digitalis have been those in which the heart has been weak and dilated, and the pulse feeble and irregular. In these the pulse has become stronger and steadier, and less frequent under its action.

“2d. In the only cases in which I have known death to occur suddenly during the administration of digitalis, the heart has been hypertrophied and firmly contracted. This may have been a coincidence, but, viewed in connection with the results of experiments to which I shall presently refer, it is, at least, a suspicious fact.

“3d. Dr. Dickenson has pointed out (*Med.-Chir. Trans.*, vol. xxxix.), and I have repeatedly verified his observations, that digitalis, if given in full doses, induces violent uterine contraction, and checks uterine hemorrhage; and, inasmuch as its action in staying menorrhagia and uterine hemorrhage is permanent, it seems fair to conclude that it gives tone to the capillaries, and increases their contractility.

“4th. This view is borne out by what I have long since observed relative to its action in arresting hæmoptysis, viz., that, whilst effecting the object required, it does not weaken but rather increases the force of the pulse, though it lessens its frequency.

“5th. When patients die of delirium tremens, the pulse is usually rapid and fluttering before death, and the heart is found weak, flaccid, and distended with blood afterwards. These are just the cases in which, on the commonly-received doctrines as to the action of digitalis, the drug ought necessarily to prove fatal, and yet modern experience has shown that in these cases it is tolerated, even in excessive doses. My impression is, that its remedial action in these cases depends on its stimulating the heart, subduing its irritability, and increasing the tonicity and contractility of the heart and capillaries, so that the brain is better supplied with blood, and the effusion of its more fluid parts, which gives rise to the ‘wet brains’ of habitual drunkards, is avoided.

“6th. It has been proved by experiments on animals (Dr. H. Jones) that when death is induced by digitalis, the heart is not flaccid and distended with blood, as is commonly supposed, but, on the contrary, empty, contracted to the utmost, and in a state of tonic spasm. All these facts confirm my view as to the action of digitalis; and if it is correct, its practical importance in relation to the treatment of cardiac dilatation can hardly be over-estimated.”

10. *Internal Exhibition of Atropia and of Strychnia.*—Dr. ALEXANDER FLEMING recommends (*Edinburgh Med. Journal*, January, 1863) solutions of atropia and of strychnia for internal use, as being safer and more efficient than the Galenical preparations of belladonna and nux vomica.

The solutions of both alkaloids which he employs are so proportioned in strength that ten minims (by measure) is the ordinary commencing dose.

This solution of atropia is made thus: “Atropia, 1 grain; distilled water, 5 drachms. Dissolve *thoroughly* with the aid of a few drops of diluted muriatic acid, and add of rectified spirit sufficient to make 10 drachms. This solution keeps well, and is of uniform strength. The tincture and extract of belladonna, however carefully prepared, vary much in power. I have found the tincture of one chemist seven times the strength of the same preparation from another and equally respectable chemist; and the extract is even more uncertain. The internal, and at the same time efficient, use of these preparations is for this reason very unsafe.

“The solution is so proportioned that 10 minims, containing 1-60th of a grain of atropia, is the commencing dose for the adult. It should be given in a little water, once daily, at bedtime, and on an empty stomach. The dose is increased

daily by 2 or 4 minims until a slight degree of the early physiological effects—dry throat, wide pupil, and dim sight—is produced. This is attained with much precision and safety; but it may be necessary to increase the dose to 30, 40, and 50 minims, according to the strength of the patient. For children of one year and all ages under one year, the commencing dose is 1 minim, of two years, 2 minims, of three years, 3 minims, and so on up to ten years, when 10 minims may be given. In verifying the commencing doses for children I have been assisted by my late pupil Mr. Burnie, House-Surgeon of the Children's Hospital of this place.

"The commencing doses here indicated for children and adults are all fixed below what may be given with propriety in the majority of cases. While weak persons are readily influenced by atropia, much larger doses than those indicated are necessary in strong subjects, in whom, therefore, a few days are usually lost in the commencement of treatment before the requisite dose is attained. In the diseases in which I use atropia, as epilepsy, asthma, constipation, and whooping-cough, this delay has no practical inconvenience. It is perhaps not superfluous to note here, that by minims I mean minims by measure. Ten minims of this solution of atropia are equal to eighteen drops, in which form it ought not to be prescribed. I generally order the solution alone, and direct the patient to be supplied with an Alsop's minimetre to measure the dose.

"I give it *once* daily. The action of one dose does not subside completely for sixteen or eighteen hours, and if a second be given before the effects of the first have passed away, we risk the production of cumulative action. When so exhibited the degree of action is less under control, and we may induce unexpectedly an alarming amount of atropism. The cumulative exhibition of atropia is not required to secure any of its therapeutical indications. It must be given *on an empty stomach*. The dose of atropia requires for its due action to be promptly absorbed; mixed with the contents of a full stomach it enters the system very gradually, and manifests its usual effects very imperfectly, or not at all. This is one reason why the drug, when taken into the stomach of the rabbit, has no action. It meets there always a large quantity of food, and, mixing with it, enters the system very gradually. The kidneys, meanwhile, are busy eliminating it with the urine, and the atropia is never present in the body in sufficient force at any one time to cause its physiological action. Several experiments have satisfied me that this explanation applies to some at least of the other examples of the immunity of grassfeeding brutes to certain poisons. Their stomachs are always full. Lastly, I give the solution *simply diluted with a little water*, that it may pass quickly and easily into the blood. Atropia should never be given in pill, which may undergo solution very slowly or not at all, when two or three pills accumulating in the stomach or bowels may, from some change in the gastro-intestinal fluids, be suddenly dissolved and excite severe atropism.

"Atropia is sometimes employed internally in the form of valerianate, but this is not a convenient preparation. The valerianate is a very deliquescent salt, and forms a gummy mass, which it is difficult to weigh with accuracy. Moreover, it is a delusion to suppose that the valerianic acid represents in any sense the valuable medicinal properties of the valerian.

"The solution of strychnia which I use is made thus: Strychnia, 2 grains; distilled water, 5 drachms. Dissolve the strychnia *thoroughly* with help of a little diluted muriatic acid, and add of rectified spirit sufficient to make 10 drachms.

"This solution has the same advantages over the powder, extract and tincture of nuxvomica, that the solution of atropia has over the tincture and extract of belladonna. It is uniform in strength, passes readily into the circulation, and the dose can be apportioned with accuracy. The commencing dose is 10 minims, and contains 1-30th of a grain of strychnia. When employed for its *tetanic* action the solution should be taken in the morning, half an hour before breakfast, and in half an ounce of water, and the dose increased 2 or 4 minims daily until a slight degree of the physiological action—stiffness about the jaws or neck, or spasmodic movements in the paralyzed muscles—of the drug is manifested, when no further increase should be made. As a tetanic it should



be given only once daily, to avoid the risk of cumulative action by giving a second dose before the operation of the first has entirely subsided. It is taken in the morning, so that its action may be over before bedtime, and the sleep is not disturbed. Lastly, it should be given on an empty stomach, and diluted with water to insure its prompt and easy absorption. Strychnia ought never to be given in pill. It is hard of solution in the weak acids of the stomach, and several pills may remain unchanged and accumulated there or in the bowels. A change in the secretions may then dissolve and transport them all simultaneously into the blood, and give rise unexpectedly to alarming tetanic symptoms. This is commonly the correct explanation of the so-called cumulative action of strychnia. It is the sudden solution and absorption of hard pills which have accumulated in the stomach or bowels.

"When the strychnia is employed as a *tonic*, the dose of the solution is 5 minims, and it may then be exhibited twice daily with safety and advantage."

11. *Recently introduced Preparations of Iron*.—MR. HARRY NAPIER DRAPER gives (*Dublin Med. Press*, Dec. 31, 1862) the following account of three recently introduced preparations of iron:—

1. *Ferri et Quinæ Strychniæque Citras*. Citrate of quinia and iron with strychnia.

<i>Preparation</i> .—Citrate of iron and quinia	980 grs.
Crystallized strychnia	10 "
Citric acid	10 "
Water	10 fluidounces.

In nine ounces of the water dissolve the citrate of iron and quinia, and having dissolved the strychnia and citric acid in the remaining ounce by boiling, mix the solutions, evaporate to a syrupy consistence, and spread on plates to dry in scales.

*Physical characters*.—Exactly similar in appearance to the citrate of iron and quinia. Its taste is, however, more persistently bitter than that of this salt.

*Chemistry*.—This compound contains in each 100 parts, one part of strychnia, twenty parts of quinia, and seventy-nine of citrate of iron. The presence of strychnia may be detected in the residue from the evaporation of the chloroformic solution of the alkaloids by the usual colour tests.

*Physiological action and therapeutical use*.—Where the use of iron is not contraindicated, this salt and the one next to be described, furnish perhaps the safest, if not the best, means of exhibiting strychnia. Five grains contain one-twentieth of a grain of strychnia.

*Dose*.—From two to five grains.

2. *Ferri et Strychniæ Citras*. Citrate of iron and strychnia.

<i>Preparation</i> .—Citrate of iron	980 grs.
Strychnia	10 "
Citric acid	10 "

Proceed as in the case of the preceding preparation.

*Physical characters*.—Indistinguishable in appearance from the simple citrate of iron. Taste: acid, ferruginous, and persistently bitter; deliquescent.

*Chemistry*.—A combination of citrate of iron with citrate of strychnia; 100 parts contain one part of strychnia. The presence of strychnia may be detected by treating the dried and powdered salt with chloroform, evaporating and applying the usual tests.

*Physiological action and therapeutical use*.—This salt has been successfully employed in dyspepsia arising from atony, in chorea, and in suppressed menstruation.

*Dose*.—Three to six grains.

3. *Ferri et Zinci Citras*. Citrate of iron and zinc.

<i>Preparation</i> .—Citrate of sesquioxide of iron	4 ounces.
Carbonate of zinc	1 ounce.
Citric acid	3 ounces.
Solution of ammonia	} A sufficient quantity.
Water	

Dissolve the citric acid in ten ounces of water, and add the carbonate of zinc

gradually. Before the point of saturation is attained the solution will deposit the citrate of zinc as an insoluble powder. This is to be collected on a filter, and having ascertained by drying a weighed portion of the mass at  $212^{\circ}$  how much is equivalent to one ounce of dry citrate, this quantity is to be heated in a capsule with the citrate of iron and ten ounces of water. When the iron salt is dissolved, enough solution of ammonia is to be added to effect solution of the citrate of zinc, an excess of ammonia being avoided. The whole is now evaporated to a syrupy consistence, and spread on glass to dry in scales.

*Physical characters.*—Brownish-green scales. Taste ferruginous and slightly "metallic."

*Chemistry.*—This salt contains in addition to the citrates of iron and zinc, ammonia, and would therefore be more properly named ammonio-citrate of iron and zinc. Its composition as found in commerce is very variable.

*Physiological action and therapeutical use.*—This salt is occasionally employed as a tonic in cases where the use of iron is not contraindicated. As an elegant form of administering zinc it is worthy of trial in diseases of the nervous system.

*Dose.*—Two to five grains.

12. *Is Alcohol Food?*—Dr. THOMAS INMAN read before the 30th annual meeting of the British Medical Association a paper on this much disputed question.

The following is a summary of the facts which he considers that he has elicited:—

"1. Nature has provided in the salivary glands, the liver, and the lungs of every mammal, an apparatus for converting all food, especially farinaceous, into alcohol; and we have no evidence that such conversion does not take place.

"2. One form of alcohol or another is available for the support of life—and for restoration to health when no ordinary food is or can be digested.

"3. Alcohol, after being taken, is incorporated with the blood, passes into the various tissues, and ultimately disappears, a small portion only passing away in the breath. We can say no more of bread, potatoes, or oatmeal porridge, a small portion of each of which passes out of the body with the feces.

"4. Alcohol, in the form of ale, porter, wine, etc., relieves hunger and quenches thirst simultaneously, and with a completeness that is not equalled by water, infusion of gentian, cayenne pepper, or by turpentine; *i. e.*, it does not act as water simply, or as a stimulant alone.

"5. Wine, beer, etc., satisfy the appetite when taken alone, and act for some time like any solid food would do.

"6. When alcohol is mingled with other food, a less amount of the latter suffices for the wants of the system than if water had been used as the drink.

"7. The various forms in which alcohol is taken, have as marked and specific effects as have animal and vegetable articles of diet.

"Individuals have subsisted wholly upon one or other of the various forms of alcohol in common use for periods of great length; and, as it is illogical to conclude that they must have lived on air, without food, or on flies like chameleons, the conclusion is irresistible.

"What that conclusion is, we fearlessly leave every thinking man to decide."  
—*British Med. Journ.*, Oct. 4, 1862.

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Diseases depending on Morbific Fermentation, and their Treatment.*—In our number for Oct. last (pp. 513-15) we laid before our readers an account of some researches by Prof. G. POLLI, regarding the therapeutic powers of a new series of salts, the sulphites. We find in a late number of the *Dublin Quarterly*



*Journ. of Med. Sci.* (May, 1862) a review of a most interesting monograph by the same Professor on zymotic diseases, strictly speaking; or on such diseases as date their existence from the presence of a fermenting or catalytic principle, either generated spontaneously in the system, or introduced from without. Not having yet received this monograph, and believing that the author's researches are of great importance, we extract from the above alluded to review the following notice of them:—

If the author's experiments can be relied on, and they seem to have been conducted with great sagacity and care, zymotic diseases would be no longer fatal, but would be as amenable to treatment as many other ailments of daily occurrence, and the remedies which cure those fatal diseases, when developed, would, in addition, seem to be capable of acting as prophylactics against them.

Dr. Polli commences his monograph by establishing the great importance of fermentation in catalytic actions; he says:—

"By catalysis, fatty principles which are insoluble are rendered soluble (glycerine, for instance); some bitter principles, as salicine, are rendered sweet (glucose); some inodorous substances, myrotic acid, for instance, are changed into odorous essences (oil of mustard); many neutral substances, as urea and allantoin, are changed into energetic alkalies (ammonia); some inert principles, or of weak nutrient capacity, as starch, are changed into inebriating substances (alcohol); and, finally, some principles of very slight action on the human economy, as amygdaline, are changed into energetic poisons (oil of bitter almonds and prussic acid.)"

Further on he says:—

"Different putrescible organic substances will, therefore, be capable of producing divers *morbific ferments*, or, perhaps, even the one organic principle, during different stages of its decomposition, may be capable of producing the same varied effects; and if, in a healthy animal, some such putrescible substance should be introduced, either by the lungs, the gastro-enteric tube, or by the cutis, or by injection, or by inoculation, such substance being in a state of decomposition, different from that which should correspond with a normal physiological metamorphosis, its introduction would give rise to serious disturbance in the composition of one or more of the fermentable components of the body; in such cases the *morbific ferment* would be introduced from without. But should the natural metamorphosis of the putrescible substances of our organism deviate from its normal course, either in consequence of atmospheric vicissitudes, great fatigues, insufficient exercise, mental anxieties, or in consequence of suppressed secretions or excretions, such deviations may give rise to compounds capable of effecting abnormal modifications in the putrescible components of our body, and in this case the *morbific ferment* would originate within the living frame. . . . The change which takes place in the human economy, in either of these cases, is simply due to a catalytic action; I shall, therefore, for the sake of brevity, and also, at the same time to indicate their proximate causes, name all diseases arising in such manner *catalytic diseases*. Catalytic diseases are truly diseases of blood poisoning, for it is in the blood that the morbid ferments are generated, or introduced. . . . I shall illustrate this operation by quoting some experiments of Schmidt (*Ann. di Chim. appl. alla Med.*, vol. xxiv. p. 59). Blood, fresh drawn from the vein of a healthy man, will not cause either sugar, urea, amygdaline, nor asparagine to ferment. If the same blood be left exposed to the air for a few days, a principle will develop itself in it which will be capable of determining alcoholic fermentation in saccharine substances; and after fourteen days' exposure another principle, capable of causing both urea and asparagine to ferment, will be formed. Such blood, however, kept ever so long, will not become capable of inducing amygdaline to ferment.

"Blood drawn from the veins of persons laboring under various diseases, including cholera, induces fermentation in a few hours, not only in sugar and urea, but also in amygdaline.

"From these experiments, I conclude that the albuminoids of the blood can, under certain conditions, undergo such change as to give origin to specific ferments which do not exist in normal healthy blood; and that during certain

diseases it not only has a greater tendency to produce these ferments, but will even give rise to others, both different and more active than such as would arise from the simple spontaneous alteration of normal blood.

"Experiments carefully practised on animals have given the following important results:—

"1st. That the injection of a certain quantity of pus into the circulation produces pyemia, and such diseases as are characterized by multiple abscesses.

"2d. That the injection of putrid matter produces septicemia, or those diseases recognized by the name of putrid infections, and which are characterized by typhoid gastro-enteritis.

"3d. That the injection of matter obtained from contagious diseases, glanders, for instance, will reproduce the same affections.

"The injection of from two to four grammes of corrupted human pus into the veins of a dog of medium size, and weighing about six or seven kilogrammes, almost always induces vomiting, after a few moments, often followed by alvine dejections. The dog looks stupid and weary, and stretches itself on its side, its breathing gets hurried, it will neither eat nor drink, and thus it remains for two or three days. If the lesser quantity (*viz.*, two grammes) of pus have been injected, then the dog about the third day commences to improve; it will take a little food, will move itself a little, and altogether look more lively, and by the ninth or tenth day it will be so much better as to be considered quite convalescent; the wound also, through which the injection was practised, and which, at the commencement, had suppurated and spread itself, will now have begun to get small, and will show symptoms of cicatrization. If, however, the larger quantity (four grammes) shall have been injected, the dog will become daily worse, presenting all the symptoms and running through all the stages of typhoid fever; it will keep constantly lying down in its kennel, in a sort of stupor; it will take no food; it often suffers from bloody stools; the wound through which the injection was practised becomes livid and gangrenous, and the dog dies between the fifth and seventh day after the operation. At the *post-mortem* examination the gastro-enteric tube is found in a general state of inflammation, the mucous membrane of a dark red color, here and there dotted with puriform exudation, at times mixed with ulcerations, especially in the neighbourhood of the pylorus, and in the cæcum; the lungs are found full of ecchymotic spots, and the blood contained in the larger vessels and in the right cavities of the heart, is tarry and liquid.

"The injection of from one to three grammes of putrid blood into the veins of a dog, produces a typhoid disease, very similar to that produced by the injection of pus, but of much more serious character. If the lesser quantity be injected, the dog rarely vomits, but remains stupid and motionless, standing on its four legs, hangs its head down, and will remain so, at times, for hours; eventually it lies down, and for several days it will neither eat nor drink, the wound, during this time, becoming large, livid, and sanious. By slow degrees, in the course of eight or ten days, the dog improves, but during its entire illness its complete prostration of strength, together with its comatose state, fully recall to one's mind the characteristics of adynamic fevers.

"If, however, the larger quantity of putrid blood, *viz.*, three grammes, have been injected, the dog both vomits and defecates, generally within a few minutes, and the successive conditions of stupidity, prostration, and coma are more strongly marked; the dog lies on his side, with his legs stretched out, as also his head and neck; the wound assumes a sanious and often a gangrenous appearance, and about the third, fourth, or fifth day after the injection, the dog dies. At the *post-mortem* examination the entire gastro-intestinal tract exhibits the appearance of a violent attack of gastro-enteritis, the mucous membrane of the stomach and the intestines being deeply injected, dark red, and in some spots ecchymotic and bloody, the most inflamed portions being the stomach, in the vicinity of the pylorus, the duodenum, and the rectum.

"The injection into the veins of a dog of the discharge collected from the nares of a glandered horse, even where only the small quantity of *half a gramme* is used, gives rise to the following phenomena. Immediately after the operation the dog generally vomits; this is followed by utter prostration of strength,



laboured respiration, distaste for food, rapid wasting away, the formation, here and there, under the skin and between the muscles, of numerous unhealthy (*marciosi, putrid*) abscesses, which, when laid open, exhibit a lardaceous base, analogous to syphilitic ulcers in the human body; after death numerous clots are found in the lungs much more numerous and better marked than in the case where pus was injected. These are not merely ecchymotic stains, but real clots, often softened in the centre, and even at times converted into purulent cavities.

"The summary conclusion of my experiments, of which I have now only given a slight sketch, is, therefore, that by means of injections into the blood, with the above-mentioned morbid matters, very serious and well marked forms of disease can be produced, exhibiting all the general characters of catalytic diseases."

Once admitted that catalytic diseases depend on the presence and action of specific ferments in the blood, the question then arises, whether it would be possible to neutralize them, and render them inactive, when once introduced or self-developed in the living body. Dr. Polli answers in the affirmative, notwithstanding the assertion of Claude Bernard (whom he calls the greatest living physiologist), who, after establishing the fact that fermentation may arise in the blood, and give origin to poisonous principles, which may, in their turn, produce certain grave accidents in the living frame, adds: "*La neutralization des ferments est impossible, parce que pour cela, il faudrait changer les propriétés du sang à tel point, que la vie ne serait plus possible.* (Leçons sur les effets des substances toxiques et médicamenteuses, p. 99.)"

Dr. Polli believes that we possess in sulphurous acid, when combined with salifiable bases, a means of controlling and neutralizing morbid ferments in the blood of living animals, without in any way vitiating its qualities so as to render it incapable of maintaining life. After carefully studying the action of sulphurous acid on organic matters, and fermenting principles in particular, our author came to the conclusion that not only it alone, but also its combinations with earths and alkalies, such as the sulphites of soda, potash, magnesia, and lime, possess, in a supreme degree, the power of arresting all known organic fermentations and putrefactive metamorphoses of animal solids and liquids; and that its action does not depend on its decomposing the fermenting principle, but simply by modifying its molecular aggregation, so that it never acts as a poison on the living organism, as do many other substances, well known for their antiseptic properties, but which, on account of their poisonous effects, cannot be employed with safety. He says:—

"I made several experiments with healthy dogs, for the purpose of determining the quantity of sulphites of soda, potash, magnesia, or lime which could be safely administered, and I found that a dog weighing from seven to eight kilogrammes, could not only take with perfect safety from one to fifteen grammes of such salts, but also without the slightest inconvenience; and a dog of about the same weight took during fifteen successive days as much as ten grammes of these salts daily. Sulphite of lime appears to be even better tolerated, as on one occasion I gave to a dog of about eight kilogrammes weight as much as fifteen grammes of it at a dose, and it did not appear to suffer the least inconvenience. I killed several healthy dogs during these experiments, for the purpose of examining the state of their stomach and intestines, and I constantly found them in a perfectly normal condition.

"Having thus determined the harmless action of these salts, I endeavoured to trace their course through the living organism, and determine, if possible, by what way and in what condition they are eliminated from the system, and I found that they remain as sulphites much longer than might have been supposed from their aptitude to become sulphates during the oxidizing process of life. I found *sulphites* in the urine for many hours after their ingestion, and not sooner than after a lapse of twenty-four hours did I find them in the urine as *sulphates*. The following experiment will prove interesting: I took three dogs in good health, and of about the same weight and stature; to one I gave fifteen grammes of sulphite of soda, in the course of twenty-four hours, one gramme at a time, wrapped up in a pellet of sausage meat; to another I gave fifteen grammes of sulphite of magnesia in the same way; and to the last I gave the same food, but

no sulphites. The three dogs were put to death at the same time; I collected the blood and the urine of each separately, together with the liver and one hind leg without the skin. I easily detected the presence of the sulphites in every one of the fluids and solids of the dogs to whom they had been administered, while I failed in detecting even a trace of sulphurous acid in the remains of the third dog. All these samples, liquid and solid, were then left exposed at a temperature varying from  $12^{\circ}$  to  $15^{\circ}$  centigrade, and after five days the urine of the third dog exhibited a highly ammoniacal odour, and its liver and leg gave evidence, by their smell, of impending decomposition, while those parts which had been taken from the dogs who had received the sulphites still remained perfectly fresh.

"These results confirmed my theoretic opinions, and I concluded that if sulphites taken by the mouth could so modify the tissues of a living animal, as to give them the power of resisting for a longer period the putrefactive fermentation after death, so might the presence of these same sulphites in the living tissues enable them to assist during life the action of those morbidic ferments which constitute the essence of catalytic disease."

In the *British Medical Journal* (Jan. 3, 1863) it is stated that M. BURGGRÆVE has put into practice the theory of Dr. Polli—the employment of the sulphites in supposed cases of morbid ferments in the blood. M. Burggraevé has communicated to the Belgian Academy of Medicine his experience in the use of these agents in cases of wounds, abscesses, and burns. The sulphite of magnesia is administered internally—one *gramme* (fifteen grains), in a glass of sugared water four or six times a day. The sulphite of soda is employed externally, in lotions, etc. It produces, we are told, immediate local anæsthesia, which is particularly appreciated in burns, and allows of their being dressed and cauterized without pain. In sixty-five cases of wounds thus treated the effects produced were immediate; the wounds improved and became of a healthy colour; active granulation took place; the pus was scanty, inodorous, and tough as gluten. The application thus also acted as a disinfectant.

Dr. LYELL, of Fifeshire, in a letter in this last-named journal (Jan. 31, 1863) states that he has been induced by the experiments of Dr. Polli to try the sulphite of soda in diphtheria, and the improvement after the use of the salt was very marked. He dissolved half an ounce of the sulphite of soda in four ounces of water, and gave the solution in doses of a tablespoonful every four or six hours.

14. *The Fermentative Theory of Disease.*—In a recent clinical lecture on Puerperal Purulent Infection, M. TROUSSEAU, in discussing the etiology of the disease, gives the following *resumé* of M. Pasteur's important observations relative to the origin of fermentations. The discoveries made by this *savant* concerning the organic corpuscles contained in the air furnish us with certain theoretical and practical facts worthy of consideration in relation to the etiology of purulent infection.

M. Pasteur's investigations of the doctrines of ferments and of spontaneous generation led him to conclusions totally different from those previously accepted in science. He noticed that all fermentations properly so called—the lactic, butyric fermentations, for example—were always associated with the presence and with the multiplication of organized beings. According to his views, the albuminoid matters do not constitute the ferments, but are the aliments supplying the materials of growth to the ferments. The true and actual ferments are certain organized entities. But, it will be asked, from whence are these organized beings derived? What is their source?

To learn this, M. Pasteur first of all proceeded to analyze the air, in order to ascertain whether or not these beings were present in the air. For this object, he made use of an apparatus which allowed a large quantity of air to pass through a peculiar kind of filter. The filter, which in fact was formed of gun-cotton, retained all the particles floating in the air, whether vegetable, animal, or mineral. The gun-cotton, thus charged with matters, was then dissolved in a mixture of alcohol and ether. The menstruum was then evaporated; so that,



after its volatilization, nothing was left except the collected aeriform floating particles, which could then be subjected to analysis chemically and microscopically. The dust thus obtained was found to contain starch, vegetable spores, and animals capable of revivification.

Further investigation showed M. Pasteur that the spores present in the acetic and butyric fermentations were of different species, recognizable by their particular forms.

M. Pasteur collected from different quarters, and under different conditions, diverse kinds, and preserved them in flasks of a peculiar construction. To propagate these spores, he placed them in liquids proper for their development—for instance, in an infusion composed of distilled water, sugar candy, tartrate of ammonia and ashes; and he found that, in the course of a few days, they were multiplied *ad infinitum*.

Now, for the multiplication of these organic bodies, it is evident that the requisite elements of nutrition must be supplied to them. The rudimentary plant, it appears, borrows from the infusion carbon and nitrogen, and in exchange it gives up oxygen, which, by union with other elements, occasions the different kinds of fermentations. Hence, then, we find that the spore is an organic living cell, which is nourished by, and vegetates at the expense of, the elements around it; and that certain determinate conditions of the medium in which the germs are placed are requisite for their vegetation. When these conditions are once determined, we may at pleasure, with the spores of the alcoholic, the acetic, or lactic ferment, obtain the alcoholic, acetic, or lactic fermentation. There are consequently spores special to each fermentation.

The spore, again, may be considered as an organic being, which, when placed in a medium containing the elements necessary for its life, its development, and growth, secretes alcohol and acetic or butyric acid, etc.; and in this way fermentation may be regarded as an organic function, every ferment being a germ, whose life is manifested by the presence of a special secretion.

May it not be the same in the case of morbid virus? May there not be ferments which, deposited in the body at a given moment and under certain determined conditions, manifest their presence by the multiplication of their products? Thus the variolous ferment may produce the variolous fermentation and its thousand pustules. Other virus may act locally, but at last modify the whole body. Thus, for instance, hospital gangrene, malignant pustules, and contagious erysipelas. And may it not be said that, in such cases, the organic ferment or matter may be conveyed by the lancet, by the air, or by the dressings?

Moreover, M. Chalvet, in his interesting researches into the causes of hospital insalubrity, has shown that the analysis of the air in the wards of St. Louis furnished him with a large quantity of starch-corpuscles; and that a large quantity of putrescible organic matter was collected in the bed-curtains, and on the walls, windows, etc. He also showed that the linen, as returned from the laundry, was still tainted with organic detritus, linseed, and spots of various kinds. May not linen thus stained with altered pus and blood be the vehicle of the contagion? We know that vaccine matter may be preserved on cotton or linen threads.

M. Chalvet has also shown that the vapour of water condensed in the neighbourhood of a suppurating focus is strongly charged with irregular corpuscles, resembling dried pus. Eiselt, of Prague, also asserts that he has seen small cells like those of pus spread through the air of a ward in which an epidemic of purulent ophthalmia was raging. On this point M. Chalvet says:—

“The atmosphere of a hospital is no longer a vague expression. The air of it differs essentially from pure air. In 1860 I witnessed the experiments of M. Réveil, and recognized in the most positive manner the presence of organic corpuscles in the apparatus constructed by that skilful chemist. We then observed chiefly cells and the *débris* of epithelial cells; corpuscles of divers forms, which became yellow under the action of nitric acid; and bits of charpie charged with these corpuscles. Under like conditions he saw, with M. Kallmann, in the laboratory of M. Réveil, organic *débris* incrustated with a granular substance, which gave the reaction of copper. The dust thus observed was collected in an ophthalmic hospital, where sulphate of copper was largely used as a caustic.

"Dust, collected by dusting the walls of the ward St. Augustine at St. Louis, furnished me with 36 per cent. of organic matter. At another period, in the laboratory of M. Réveil, dust collected from the same quarter yielded 46 per cent. of organic matters, which consisted in large part of epithelial cells, and yielded a horny smell when calcined.

"When wetted, the dusty powder quickly gives off a very fetid smell. Doubtless, the thick layer of dust covering the walls of our old hospitals may produce gases capable of favouring the transport through the air of corpuscles, which perhaps play a very important part in the air of hospitals."

May not, asks M. Trousseau, considerations of this kind furnish us with useful information regarding the etiology of diseases? There may, perchance, exist in the air at a given moment morbid germs, which will some day enable us to seize upon the cause of endemic and epidemic diseases.

"These germs will not be developed as readily in all patients, because the conditions of their reception vary infinitely. Some patients, like certain earths, will not receive certain germs. The wind may spread the same seed widely over a country, and yet the grain will not spring up everywhere alike. Here the soil may be too wet; there too dry; here other germs have grown up, and stifled the new seed. Just so is it with morbid germs and ferments. They, individually, require conditions favourable to their development."

Reasoning upon the facts supplied by MM. Pasteur and Chalvet, M. Trousseau argues, speaking of purulent absorption, that the existence of a wound, whatever its seat or its size, is a necessary condition of the affection; and the specific character of the pus, he believes (as does M. Robin), lies in its serum. And then, applying M. Pasteur's theory of vegetable spores in this domain of pathology, he asks: May not the analysis of the air of hospitals and of great cities one day show us the presence in it of morbid germs, analogous to vegetable sporules, which will grow and multiply whenever they meet with the conditions necessary or favourable to their growth and development—when, for example, they come into contact with wounds?

M. Pasteur's researches have upset the theory of spontaneous generation, and have shaken to its foundation the theory of multiplication by fermentations; and the recent experiments and observations of MM. Eiselt, Réveil, and Chalvet afford great support to the hypothesis above given of the origin of purulent absorption. The observations of these gentlemen show that in the hospitals of Berlin and Paris, the air around the beds of patients contains globules of pus, and filaments of charpie infested with putrid matters. Why may not epidemics, then, have their etiological source in morbid entities floating in the atmosphere? These different matters may act in different ways. Some of them may enter the respiratory mucous membrane, as perhaps do those of smallpox, cholera, and glanders. Others again—the purulent sporule, for example—may require a special entrance into the body—a wound. In such case the morbid force, the purulent or putrid sporule in contact with the wound may act like the vegetable sporule, which in contact with a special medium, produces carbonic acid, appropriating to itself oxygen, and thus multiplying very rapidly and *ad infinitum*. The morbid sporule, finding in the wound the necessary conditions for its life and growth, may engender new sporules, or so modify the serosity of the mucous or cutaneous wound, that the serosity, once absorbed, will carry with it into all parts of the body the purulent essence, and so give rise to the manifestation of purulent infection.

If this be true, therapeutics will, we may fairly hope, be as powerful as the disease; for, as the vegetable sporules will die if deprived of the medium necessary for their growth, so likewise may these morbid sporules be destroyed if attacked at the moment when they are deposited on the wound, or if the wound be so modified as to be rendered unfitted for their growth. Thus may not cauterization be destructive of these sporules? Is not diphtheritis often modified or removed by special agents, such as tannic acid, or even glycerine? Are not the most subtle poisons destroyed by early canterizings of the inoculated wound—the virus of syphilis, of serpents, and of hydrophobia, for example? The therapeutic agent in such case, applied in time, destroys the virus of the poisons, or it converts the wound into a non-absorbing surface.



We can, it is true, never hope to purge the atmosphere of the many morbid agents floating in it; but public hygiene may diminish their intensity. And if we cannot, in dressing wounds, remove all sources of impurity, we can, at all events, render the wound unfitted for the reception or absorption of the morbid matters.

M. Trousseau quotes M. Maisonneuve to show that the actual cautery is the best means for the prevention of purulent absorption; and he suggests that the ligature of arteries may, in this respect, be considered a retrograde step. The ligature keeps up suppuration, and is, therefore, a direct cause of purulent infection. On this score, however, neither M. Trousseau nor M. Maisonneuve will find many adherents in opinion.

Erysipelas, M. Trousseau adds, in surgical wards is always most frequent in times when puerperal fever is raging epidemically. We cannot divide erysipelas into spontaneous and traumatic; for it is invariably traumatic. It always commences with a wound. Carefully examine your patients, and you will find that all those who present themselves with so-called spontaneous erysipelas had previously had some wound in the pharynx, the amygdalæ, the mouth, some scratch about the lips, eczema about the ears, or some cutaneous disease of the scalp.

There is, in all cases of erysipelas, a wound; and with the wound, in fact, the erysipelas commences. When erysipelas appears, it is generally as an epidemic. Moreover, there appears to be a distinct relation between erysipelas and purulent infection. The gravity of these diseases generally increases or diminishes at the same time. They occur at the same time, in the same ward, in the same hospital or town. Moreover, erysipelas of a serious kind often ends in purulent absorption; and thus we find relations existing between phlebitis, purulent infection, and erysipelas. They may, in fact, be only different degrees of inflammation of venous tissue, having one common cause of origin, a wound, and associated with one particular epidemic; and they may be modified in their pathological evolutions by topical applications to the wound, or the germ deposited on the wound.

Thus, then, we find, in conclusion, that there is no such thing as purulent infection without a wound; that a wound is the necessary and obligatory condition of its existence; that every wound may be attended with suppurative phlebitis. Suppurative phlebitis, the most ordinary source of infection, causes the pus to be passed as such into the circulation. The pus may be introduced in a continuous or in an intermittent manner. Purulent infection may also result from abscesses of the coats of the aorta and of the heart; but this cause of infection is rare.

Capillary phlebitis may cause the infection through the production of pus; but in the epidemics of purulent infection, the serosity of wounds, modified in a special manner by atmospheric conditions, may be absorbed by the capillaries, without any erosions of the vessels.

Such are the views on the subject lately delivered by M. Trousseau. We need hardly tell our readers that, however rational they are, they are, as yet, only hypotheses and matters of speculation. But from rational hypotheses often spring great conclusions and discoveries; and, therefore, we recommend them to the consideration of the profession.—*British Medical Journal*, July 12 and 26, 1862.

15. *A Disease like Measles produced by an Unusual Cause.*—Dr. HENRY KENNEDY relates (*Dublin Quarterly Journal of Medical Science*, Feb. 1863) the following case, which, at the time of its occurrence, he says, he "was in total ignorance of its nature," and set it down as anomalous. So matters stood until he read the paper of Dr. Salisbury, published in the July number of this Journal for last year. This paper he regards as throwing light upon the origin of the disease in his case.

This case was briefly as follows:—

"A young gentleman of fifteen years of age, rather under-sized, but of a high order of intelligence, returned to school after the summer holidays, being then in perfect health. As he entered the school-room one of his playmates met him, holding a paper bag, with some kind of powder in it, in his hand, and before he

was aware, had dashed a handful of the powder in his face; and there can be no doubt that some of it got not only into his eyes, but down his throat—for he was laughing at the moment. The powder turned out to be flaxseed-meal, which, by some accident, the other boy had found in the room.

"The result was truly remarkable; the boy was at once seized with smarting and watering of the eyes, running from the nose, cough, and dyspnœa. With some difficulty he made his way home—a distance of an English mile. By the time he reached it his face had become much swollen, the eyelids and eyes very red, and the dyspnœa urgent. The excitement, too, of the system generally was very great; and all this within two hours of the accident. When seen the following day he had, except the rash, all the look of a boy suffering from a sharp attack of measles. His face was still swollen, his eyes were injected, and had a strange dark-red line round them, giving a very peculiar expression to the countenance; and he had a constant loud cough, with dyspnœa. His pulse was 120. Two years previously I had attended him in a well-marked attack of measles, with cough.

"On hearing the history of the case, I confess I thought that quiet and a little time would suffice to get him well; and so he was only directed to inhale the steam of boiling water; and, as his distress was referred mainly to the larynx, a small mustard poultice was directed to be applied over that organ night and morning. In this expectation, however, I was much disappointed; and finally, after waiting a few days, when a considerable amount of general bronchitis had supervened, I was compelled to treat the case as if it were ordinary measles, by salines, including tartar emetic, and blisters; and by the end of three weeks, and not till then, could he be pronounced well. The last symptom which remained was dyspnœa; for this he got small doses of the oxide of zinc with markedly good effect. The boy is now perfectly well."

Dr. Kennedy considers that Dr. Salisbury has opened up a question of the greatest interest and extent, and he regards the experiments of Dr. S. as conclusive, that certain bodies which are being constantly generated in vegetable matter, are capable of causing certain diseases when inoculated in the human frame, or brought even only in contact with mucous membranes.

Dr. K. thinks that the following deductions may be drawn from the facts which have been adduced:—

"1. That certain acute diseases affecting the throat and air passages may be caused either by inoculation of certain vegetable fungi or by direct contact of the same with the mucous membranes.

"2. That, as far as is yet known, the diseases so produced seem to have the closest resemblance to measles.

"3. That the vegetable fungi which have been long admitted to exist in certain chronic diseases, as those of the skin, show an impaired state of the constitution; and hence the importance of combining a constitutional with a local treatment in their management.

"4. That when vegetable fungi cause disease by coming in contact with the mucous membranes of the head and chest, we have now fixed data for the administration of emetics; which, by their direct effects, may thus cut short disease in its early stage."

16. *Diseases produced by bad Potable Water.*—M. BOUCHARDAT has communicated to the French Academy some elaborate investigations on this subject. The following are the more salient facts and conclusions at which this persevering observer has arrived:—

Endemic cretinism is principally due to two causes acting simultaneously, viz., the connection of cretinism with endemic bronchocele and consanguinity of marriages. In all localities where endemic cretinism has been observed, endemic bronchocele is, likewise, met with; thus, in the Himalaya Mountains, in the Andes, the Pyrenees, and the Alps—in these parts people affected with goitre have cretinous children, and the progeny of these latter are cretins. The intermediate degree of "cretinous" may be wanting, but only in exceptional cases. In order that endemic bronchocele may be developed, a few years' nay, even a few months' use of bad drinking-water may suffice, but that cretins may



be produced, it is necessary that insalubrious conditions should extend over several generations. Amongst these influences marriages of consanguinity between people who have been subject to the action of bad drinking-water are the most powerful. This hypothesis explains the considerable influence exercised by the configuration of the soil. We observe cretins in closed valleys, which have little communication with the world without: the inhabitants of such localities intermarry; and even if all the marriages should not be decidedly consanguineous, they, nevertheless, take place most frequently amongst people who have been subject to the same influences. For such degenerate races consanguinity is full of danger. M. Bouchardat was formerly of opinion that consanguinity was not noxious to persons otherwise well developed; and believed that, although certain inconveniences might be connected with it, these were compensated by the increase of beauty and purity of race. This opinion was founded on certain facts in zoology, and on the circumstance that, in ancient Greece, the most perfect types of humanity had, under the influence of consanguineous alliances, become rather improved than deteriorated. His convictions, however, have been shaken by M. Boudin's researches on the influences of such marriages in producing deaf-and-dumbness; and he will, probably, give up this idea altogether if he should become acquainted with M. Liebreich's investigations on "retinitis pigmentosa," as caused by the same influence, and which seem to have hitherto escaped M. Bouchardat's attention.

In order to prevent cretinism, public and private hygienic measures should be taken. As regards the individuals affected, they should be removed from the localities where endemic goitre and cretinism are found to exist, and transferred to a moral, intelligent, and humane household, where they should be under continued *surveillance*. They ought not to be left to a degrading inaction, but those faculties which are given them should be brought into play. With respect to public hygiene, we must keep in mind the fact, that cretinism has been diminished, or even altogether disappeared, as soon as a broad high road has intersected the places in question, and they have been animated by commerce. They should, therefore, be cut through, not by railways, but by roads, leading to a healthy population into the localities, and thereby diminishing the chance of marriages of consanguinity. The church should only give licences for such marriages with the very greatest caution. Gin-shops should be placed under strict *surveillance*; and all should be rigorously punished who would sell alcoholic liquors to children, or to beings devoid of reason.

In France, and on the Continent generally, persons affected with goitre, and having a disposition to cretinism, are exempt from military service; but M. Bouchardat is inclined to think that, by recruiting amongst such persons for the army, we should render them the most essential services. The change of place, the attention that would be given them by the army surgeons, etc., would soon free them from their infirmity; while military discipline would raise the level of their intelligence, and, in subjecting them to the "reign of rule," would make useful men of them. Another consideration here would be, the amelioration of race. If bronchocele is the first step leading to cretinism, it is obvious that, if the *élite* of the population is taken away by conscription, persons with bronchocele, who are exempt, will, as it were, monopolize the country, and condense the focus of the evil. Thus conscription, which for these localities might be a condition of progress, if it removed those affected in order to bring them back cured, becomes, on the contrary, one of the most active causes of degeneration. Persons of the kind mentioned might do good duty in military infirmaries and other branches of the army and navy. If transferred to this latter, the mere circumstance of living in a port or on the sea would effect a speedy and definite cure. The last word of advice, however, to the authorities is—give these localities wholesome water. Everywhere you may collect rain-water in sufficient quantity for the wants of man. Distribute, moreover, to the populations of such districts salines, with a small proportion of iodine, so that each person may take a few milligrammes of iodine every day, proper medical attention being at the same time necessary. Drinking-water, the continued use of which causes the formation of endemic goitre and cretinism, contains organic substances in solution which come from the decomposition of certain vegetable

parts in dolomitic soil. Such water generally comes from ponds, marshes, fens, and swamps, and should never be taken unless previously filtered or boiled.

The "bouton" of Aleppo, and the "bouton" of Biskra, two endemic diseases of the skin which are still enveloped in much obscurity, are in all probability produced by the use of unwholesome drinking-water. All those who drink of the water of Coïck for a certain time become affected with the "bouton" of Aleppo, while those who do not partake of it are spared. The country people who come to the town of Aleppo and drink of the bad water soon begin to suffer; while those peasants who stop at home remain free. The water of Coïck is slightly alkaline, and contains the salines usually found in drinking-water, as well as organic matter, which latter is no doubt the cause of the evil. The "bouton" of Biskra, which very much resembles that of Aleppo, is to be ascribed to the use of the water of a torrent coming from a plain where the remains of more than a hundred thousand palm-trees are accumulated. It is highly probable that the organic substances coming from the decomposition of these remains, under the influence of salines in solution, impart this remarkable property to the water.

The following are the chief hygienic characters of the different species of drinking-water:—

1. *Spring-water* has the advantage of being generally limpid, so that there is no occasion for filtration, and of being fresh and agreeable to drink; springs come, moreover, frequently from a higher elevation than the towns where they are used, so that we do not want mechanical contrivances for raising the water. Spring-water is mostly richer in salines than river-water. If it is pleasant to drink, and if the fixed constituents consist of bicarbonate of lime without organic matters, and with oxygen, the water is extremely salubrious; but if it contains organic substances, if it comes from marshy soil, and is devoid of oxygen, it must be looked upon with distrust, in spite of the good appearance it may present. Water of this kind should only be used, if the experience of several generations has fully proved its innocuity. This is of much more importance than any chemical analysis, however well made.

2. *Water of rivers and rivulets* is generally wholesome, but its composition may slightly vary according to high or low-water, and this is not the smallest disadvantage it offers. It requires to be filtered, and in summer to be cooled; and the poor man has no filter for purifying, and no cellar for cooling the water.

3. *Water of canals* usually contains more fixed constituents than river-water, and also organic matter.

4. *Water of wells* in old towns is almost always saturated with sulphate of lime; it contains, moreover, the last products of decomposition of organic substances, amongst which we find nitrates and compounds of ammonia, which arise from putrid fermentation of bodies interred in cemeteries, and other impurities.

5. *Water of cisterns*, accumulated by rain, is generally pure, unless collected from roofs soiled by dust or soot. This water is almost too pure, and the absence of lime is prejudicial in certain conditions, as, for instance, for wet-nurses, young children, etc. This want should, therefore, be filled up. Rain-water combines with lead, and we should, on no account, collect it in cisterns of lead, or raise it by pumps in the construction of which lead has been employed.

6. *Water of marshes, ponds, swamps, fens, etc.*, is generally bad, because it contains a considerable proportion of organic substances in suspension and solution. If one is obliged to drink water of this kind, it is preferable to choose such only as has undergone the influence of the sun, and which contains red or green monads. If possible, it should be filtered through carbon, and only be employed after having been boiled. As boiled water, by itself, is unpleasant to drink, tea or coffee should be added, or, if these substances cannot be procured, roots of the strawberry plant, leaves of holly, oak, soap-wort, sage, mint, thyme, etc.—*Med. Times and Gaz.*, Feb. 14, 1863.

17. *Epidemic from Eating the Meat of a Diseased Cow.*—Dr. HUSEMANN, of Detmold, gave an account to the Congress of German Naturalists and Physicians, of a new epidemic disease, which had been observed by him in August,



1862, and was caused by eating the flesh of a diseased cow. About 150 persons were affected. The epidemic was novel in etiology as well as with regard to the symptoms. There were three forms of it: one was very mild, the patients suffering from diarrhœa without fever; another was more severe; there being rigors, febrile symptoms, vomiting, diarrhœa, cerebral symptoms, and violent pains in the abdomen, with great sensitiveness to pressure; the symptoms continued for about a week. The third form was the most severe; there was general collapse, coldness of the extremities, scarcely perceptible pulse, etc. Death ensued in three cases, and convalescence was much protracted in the others. The post-mortem appearances were gastro-enteritis, and hyperæmia and extravasation in the cerebral meninges, the blood being dark and very fluid. There was no retention of urine, and no difficulty of deglutition, whereby the epidemic was distinguished from cholera, and from poisoning with sausages. The cow had had a fracture of the ribs and pleurisy, and it was, therefore, probable that the meat had been poisoned in consequence of pyæmia. The meat was poisonous whether roasted or boiled.—*Med. Times and Gaz.*, Dec. 13, 1862.

18. *Cerebral Hemorrhage*.—Mr. JONES read (January 16, 1863) before the Western Medical and Surgical Society an account of his researches relative to some points in connection with cerebral hemorrhage. The author's conclusions were based upon 40 fatal cases which had occurred at St. George's Hospital. These were taken indiscriminately; but after a careful scrutiny, selecting only those cases in which a perfect post-mortem examination of all the organs of the body took place, and in which a visible hemorrhage could be demonstrated from the cerebral arteries, 36 cases were found perfectly reliable for his remarks. Of the predisposing causes, the influence of age was first discussed, and, contrary to what had been often advanced, he showed that the greater number of cases occurred between the ages of 40 and 50; for in 38 cases he had found 3 had occurred between 30 and 40 years, 13 between 40 and 50, 10 between 50 and 60, 9 between 60 and 70, and 3 between 70 and 80. But a further examination showed that, by comparing the numbers of cases with the respective numbers of population at similar ages, the period of life at which the disease was most prone to occur relatively was between 60 and 70; for between 30 and 40 years, 3 cases occurred in a population of 2500; between 40 and 50, 13 cases in a population of 1800; between 50 and 60, 10 cases in 1300; between 60 and 70, 9 cases in 1000; and between 70 and 80, 3 cases in a population of 500. With regard to sex, males were shown to be more liable to the disease than females; for of 40 cases 11 only were females. Mr. Jones next described the efficient causes of cerebral hemorrhage, and the intimate connection between the latter and disease of the kidneys, heart, and arteries. This being one of the principal objects of the paper, he entered minutely into details of the 36 fatal cases in which disease of the kidneys, the heart, or arteries was found conjointly or singly with cerebral hemorrhage. The analysis of these 36 cases was then examined, the result being that disease of the cerebral vessels, other vessels, of the heart, of the kidneys, was found in conjunction 10 times; disease of the cerebral vessels, of the heart, of the kidneys, 22 times; disease of the heart and kidneys, 29 times; of the cerebral vessels and kidneys, 22 times; of the cerebral vessels and heart, 24 times; of the cerebral vessels and heart (hypertrophy), 10 times; of vessels not cerebral and kidneys, 13 times; of vessels not cerebral and heart, 13 times. The further result of the analysis showed that in more than one-half the cases the kidneys, heart, and cerebral vessels were simultaneously affected; and in almost all those cases in which there was absence of disease in one or other of these organs there was the history of an accident to which this attack was attributed. The various morbid appearances found in the kidneys, heart, and arteries, under the foregoing circumstances, were fully and minutely explained, the author being strongly of opinion that the diseased condition of the kidneys first led to that of the arteries, and subsequently to the heart. In support of this opinion, Mr. Jones offered an hypothesis to the effect that the kidneys, from their disorganized state, being unable to deplete the blood on the one hand, but allowing the albumen to unduly pass away on the other, this

fluid was rendered unfit to carry on the nutrition of the tissues, and that the arteries suffered early from this defective nutrition. The conclusions the author drew from his elaborate examination of the subject was, first, that cerebral hemorrhage, when associated with renal disease, is almost always found to be dependent upon rupture of one or more of the cerebral arteries, in consequence of certain morbid changes having taken place in their walls; secondly, that these changes in the walls of the vessels are induced by the altered state of the blood, the effect of advanced disease of the kidneys; and, lastly, that the enlargement of the heart is the immediate effect of the renal disease, conjointly, perhaps, with the alterations in the coats of the vessels. The paper concluded with some remarks upon the treatment of these cases, in which a tonic and stimulating plan, rather than a lowering one, was advocated, and two cases were given which seemed to justify it.—*Med. Times and Gaz.*, Feb. 14, 1863.

19. *Influence of Hypertrophy of the Heart and Diseases of the Cerebral Arteries in the Production of Apoplexy.*—Dr. A. EULENBURG has investigated this subject statistically in a prize thesis presented to the Medical Faculty at Berlin. In 42 cases of sanguineous cerebral apoplexy, abnormal conditions of the arteries at the base of the brain—hardening, calcareous deposits, and fatty degeneration—were found in 29: in 13 cases only were the large cerebral arteries free from disease. In 9 of the 42 cases there was hypertrophy of the left ventricle. Of the 29 cases in which disease of the cerebral arteries was present, there was also more or less extensive endocarditis in 17, alterations of the valves of the heart in 19, and hypertrophy of the left ventricle in 6 only. Dr. EULENBURG hence draws the conclusion that disease of the cerebral arteries is a much more frequent cause of apoplexy than cardiac hypertrophy.—*British Medical Journal*, Dec. 6, 1862, from *Virchow's Archiv*, and *Wiener Medicin. Wochenschr.*, Sept. 6, 1862.

20. *Embolism.*—An interesting case of embolia of the infundibulum of the right ventricle and pulmonary artery communicated to the Société Anatomique, of Paris, by M. GOURAUD, has been made the subject of a report by M. LANCEREUX. The following is M. Gouraud's *résumé*: "A healthy woman, aged 46 years, entered La Charité, for a fracture of the right leg, accompanied by considerable extravasation of blood. Scudder's apparatus was applied, and all went on well, the size of the limb lessening. After three weeks the apparatus was replaced by a starch bandage. On the following morning the patient was quite well, but, some hours later, violent palpitations of the heart occurred, the patient cried out, became livid, and was dead in a few minutes. On post-mortem examination, the right tibia presented two solutions of continuity, the fibula being fractured in only one place; there was an extravasation of blood infiltrating the whole thickness of the soft parts in this region. The veins of the right leg presented small coagula, which became more distinct and large in the femoral vein, the external and common iliac, and even in the lower part of the vena cava. The fibrinous coagulum was firm, elastic, of a deep red or rose colour, and was adherent at several points to the internal surface of the vessel. On the left side the limb and veins were healthy. From the lower part of the vena cava to the heart the blood was liquid. There existed in the infundibulum of the right ventricle and in the pulmonary artery a clot drawn out into the form of a leech, thirty-six centimetres in length, of a diameter much less than the vessel where it was found, of a rose or deep red colour, and not homogeneous. The lungs were engorged, but crepitant." M. Gouraud explains the obliteration of the passage by the arrest of the long clot, on arriving at a branch of the pulmonary artery, such as would not allow it to proceed further, and then by the ventricular contractions causing the other extremity to be folded back in the infundibulum, so as to lie opposite the sigmoid valves. It is necessary that we should abridge considerably M. Lancereux's observations. The first question to which he applies himself is the cause of the coagulation which took place in the veins. He explains it thus: The blood coagulated at the seat of the fracture necessarily compressed the mouths of the ruptured vessels; but, at the same time, coagula would form at the extremities of these vessels, and mount up, as is the rule for



them to do, as high as the nearest valves. From the withdrawal of the *vis a tergo*, there would be stasis of the blood proceeding from the collateral veins, a new coagulum, commencing this time at the valves, and these latter coagula would lengthen gradually, and become, in their turn, the cause of new coagula, until the principal venous trunk becomes completely obstructed. In this view the cause is a local one, namely, the diminution of the current of blood, and the influence exercised by the fibrinous clot upon the blood which surrounds it. Admitting the sufficiency of this cause to produce venous coagulation, other causes may be added, such as diminution or loss of contractile power in the veins, tumours compressing them, and whatever retards the venous circulation. General causes would also operate, on the one hand, by lowering the force of the heart and the contractility of the vessels, and, on the other, by causing modifications in the blood itself such as are even now little understood. It is important to point out that, under the influence even of general causes, it is always where the circulation tends to be slow that coagulation commences.

The clot, which begins to be formed at the situation of a valve, presents a form and characters which must first be treated of. At one extremity it presents the mould of one or two of the valves; its other end is rounded or conical, and upon its length may be perceived the smooth and clean impressions of valves. One of its surfaces, that in contact with the wall, is strictly striated, yellowish or marbled; the other surface, free and bathed in the blood, is brownish and granular. The length varies from some millimetres to several centimetres; its bulk may become considerable, since it generally forms in the largest vessels, and is thus the most frequent cause of sudden deaths. Besides, by reason of its characters, it constitutes the most positive evidence of embolia of the pulmonary artery when it is met with in this entirely valveless vessel. Observation teaches us that, where there is but one clot, and the death has been sudden, it is always the trunk of the pulmonary artery or the infundibulum which is found obstructed. The blood in the heart is ordinarily black and fluid, as in death by asphyxia. I do not, for my own part, think that a single embolus, arrested in one of the divisions of the artery, can bring about this fatal accident. For the most part the embolic clots are multiple, and always, I say again, if death has been rapid, they are found either in the trunk of the pulmonary artery or in its principal branches. As respects the smallest clots, they are rarely found in divisions of the fifth order, but mostly in those of the third or fourth. In some special cases known as capillary emboli, very small clots have been found in the smallest branches. The form of the migratory clots is generally cylindrical, their extremities at one time regular, smooth, and conical; at another, rough and torn; at another, only one end is torn, while the other is polished and conical. It is in cases where both extremities are smooth and untorn that valvular impressions are found upon the body of the clot, and one or two moulds of valves at one extremity. The clots which are torn at their extremities are generally devoid of impression and moulds, but they are now and then channelled. When one extremity only is torn, the other is generally conical. The same difference which we have established in the characters of venous clots is, consequently, found in the clots of the pulmonary artery; and there exists between the venous coagula and those of the pulmonary artery such a resemblance, that we are compelled to admit that the clots have been transported from the veins into this artery.

Besides these characters, embolic clots differ from coagula formed just prior to or immediately after death in their elasticity, brownish or marbled colour, and the condition of the fibrin which is always in progress of retrogression. The clots formed at death are soft, oedematous, flattened, branched, and only close incompletely the containing vessel. The clots which, during life, form primarily in the branches of the pulmonary artery (autochthones), differ from emboli in their form and seat, and in the absence of the characters which have been described. In certain circumstances, however, they are readily confounded with embolic clots, namely, where fibrinous coagula have become added to the latter, but it is always easy, by means of a section and examination with the microscope, to recognize the central embolus. If the bulk of embolic clots is very variable, their length especially presents great variety: thus, whilst some

may only measure a few millimetres, others are several centimetres in length; such as I have seen produce sudden death, have been five centimetres long; that which M. Gouraud has described in his observation presented the extraordinary length of thirty-six centimetres. I am disposed to believe that some error has slipped into this measurement, especially seeing that the femoral and part of the iliac veins were filled with a fibrinous coagulum. Under these circumstances it is necessary to suppose that the embolic clot occupied primarily the greater extent of the vena cava, a hypothesis of little probability, since no symptom of such an obstruction was apparent during life. I am, consequently, driven to believe that some secondary coagulations have been comprised in the measurement. But be this as it may, it is certain that very long clots may be carried by the torrent of the circulation, and an important and peculiar character of them is, that they are curved and wound round, at one time in the trunk of the pulmonary artery, and in the infundibulum, as in M. Gouraud's case—at another, in one of the principal divisions of the pulmonary artery. But after a certain lapse of time these distinctive characters become wanting, and it is then very difficult to tell whether a coagulum, met with in the pulmonary artery, has been formed there, or has arrived there by migration. The only circumstance which we may thus be able to call up in favour of embolus, is the existence of a venous thrombus. The phenomenon which renders the embolus unrecognizable is important and really remarkable. The continued contact of the clot with the arterial wall determines a slight irritation, in virtue of which a blastema, exuded between the wall of the vessel, and the clot, soon becomes organized; by degrees, this substance extends on the circumference of the plug, and soon forms a sort of cupule, in which the latter is contained. At last it envelops it completely, and encysts it, so that, after a time, often not very long, the fibrinous coagulum of the pulmonary artery is found to be everywhere surrounded by a perfectly organized membrane. Within this membrane, microscopic examination discovers an amorphous substance, more or less granular, embryo-plastic nuclei, elongated cells, and, above all, fibres of connective tissue. In the midst of these elements we sometimes find capillaries, free granules, the *débris* of red globules, and amorphous and crystalline hæmatin. After describing further changes in the condition of these encysted clots, M. Lancereaux proceeds to the subject of the condition of the lungs in cases of pulmonary embolia. It is evident (he continues) that an embolus which closes up the trunk of the pulmonary artery, and gives rise to sudden death, cannot cause any important disorder in the pulmonary parenchyma. Supposing such alteration possible, time would be wanting. But it is different when a coagulum comes to be situated in an important division of the artery, closing its canal completely. In this respect, M. Lancereaux expresses his agreement with Virchow, who states that, however complete the obstruction, it produces no alteration in the parenchyma, and, above all, no gangrene of the lungs. At the most, Lancereaux has observed slight diminution of volume, anæmia, or some œdema; and he explains this, physiologically, by the fact, that the pulmonary artery is an organ engaged in hæmatosis, and that the nutrition of the lung is effected, not by this, but by the bronchial arteries. Still (he proceeds to say) pulmonary coagula are sometimes accompanied by a lesion of the parenchyma of the lungs, whether they be the cause of it or not. Pulmonary apoplexy is frequently conjoined with obstruction of the branches of the artery; but it is to be remembered, that this generally occurs in the course of affections of the heart, especially in fatty degeneration; and it is also to be observed, that, under these circumstances, the clot is always situated behind the apoplectic spot, has none of the characters of an embolic clot, and is evidently autochthonic—not the cause, but an effect, of the apoplexy. The same thing may happen in certain cases of tubercular disease, of pneumonia, or even of gangrene. It is, however, important to notice, that there are certain special conditions of the embolic clot which are capable of giving rise to two of the alterations just alluded to—namely, pneumonia and gangrene. These conditions pertain to a special state of alteration of the tissues, in the midst of which the thrombus has been formed: if the coagulation has taken place in the midst of a purulent or gangrenous focus, the coagulum, formed in part of fibrin, and in part of other elements, possesses qualities in virtue of which it may alter the



tissues with which it subsequently comes in contact; thus it is that metastatic abscesses often appear in the lungs of individuals, with suppurative thrombus of the cerebral sinuses, and in women suffering from metritis or suppurative phlebitis. Thus, too, gangrenous spots in the brain are found in persons who have primarily a gangrene of the lung; and gangrene of the lungs is met with frequently in paralytic individuals, in whom a sphacelus has formed over the region of the sacrum. Particles of fibrin or fragments of tissue, impregnated with pus or septic matters, become the points of origin of secondary foci, purulent or gangrenous, as the case may be.

Certain practical conclusions flowing from this fact related by M. Gouraud deserve attention. We find here a condition which has already been mentioned in other cases, one of which is related by Klinger. In three different cases sudden death has followed shortly upon compression exercised by a bandage upon the limb, which is the subject of the thrombus. It was, as we know, formerly customary to apply a compressing bandage upon a limb affected with œdema, or even with phlebitis, as soon as the acute stage of the inflammation had ceased. The practice is far from being free from danger, and it must necessarily be proscribed. But, besides, when, consecutively to a traumatic condition, fracture, amputation, etc., we have reason to suspect the existence of a venous thrombus, it will surely be prudent in the surgeon to abstain as much as possible from strong compression, if he would not expose his patient to more or less serious accidents. It is especially some time after the commencement of the coagulation, when the fibrin begins to disintegrate, that we must avoid this practice. And, for the same reason, every kind of handling of the injured limb should be avoided, and the most complete state of rest maintained. Indeed, in a certain number of cases, a slightly exaggerated effort, as I have seen on two different occasions, may suffice to bring about the separation of the clot, and sudden death. Occasional causes of this kind are marked, in the greater number of cases of sudden death, by embolia, and it is thus pointed out how necessary it is to be cautious when we have to do with patients suffering from venous thrombus.—*Med. Times and Gaz.*, Feb. 14, 1863.

21. *Conditions affecting the Constitution of Phthisical Persons when in Health.*—Dr. EDWARD SMITH, Assistant Physician to the Hospital for Consumption and Diseases of the Chest, has published (*Dublin Quarterly Journal of Medical Science*, February, 1863) a very interesting statistical inquiry into the prevalence of numerous conditions affecting the constitution in 10,000 phthisical persons when in health; intended to show the prevalence of a large number of conditions which are believed to modify the constitution, or which are evidences of modified constitutions in consumptive families. The investigation extended to a very large number of questions, and the results are given in separate tables.

The author gives the following summary of the leading truths which his extended investigation suggests:—

“The first question which arises is that of hereditary transmission, either in the sense of absolute transfer of the elements of the particular disease from the parent to the child, or the communication of a state of the system in which disease in general, and this disease in particular, may probably originate. There is a wide difference in these two ideas, and yet it cannot be doubted that they both exist in the minds of various professional men at this day. The former is the older one, and that which the increasing knowledge of our day has rendered less tenable than was formerly believed, since the idea of the transmission of the germs of disease *in utero* is now more strictly limited to such specific diseases as syphilis. Yet it must be admitted, that whilst the growing feeling of the day is in favour of a theory which only implies a defective constitution, there is an under current of belief that this assumes a specific direction in the production of this particular class of disease. Hence, whilst there is a clear distinction in the two theories in statement, there is far more oneness in belief. We will look at them in both aspects.

“Feebleness of the general health of the parents existed before the birth of the patient in one-fifth, and throughout life in one-third of all the cases. It is

quite certain that the former statement would be under the truth, since the child would only know of such marked deficiency of health as would, in after years, have been matter of frequent conversation. It is also necessary to consider the two periods together; for although it may be objected that the condition of the health of the parent, after the birth of the child, in no way concerned the health of that child, there is strong presumptive evidence that general feeble health throughout life indicated a condition of the constitution below that of health, and hence would have existed, although it might not have demonstrated itself before the birth of the child. We shall, therefore, more nearly approach the truth if we take the larger percentage to represent the true state of the system, and affirm that one-third of the parents had feeble general health.

"The mortality of the parents was such, that one-half of one, and more than one-fourth of both, were dead at the period of the inquiry. Hence, in three-fourths of the cases, one or both parents had died. In the same manner it is shown that in only one-fourth of the cases were both parents living. The value of these facts can only be estimated by considering the age of the child at the period of inquiry, and the age of the parent at the period of death; for it is evident that, as the child was younger or older, so would the parents, in the natural order of things, be living or dead. The average age of the patients, at the period of the inquiry, was 28.8 years. The age of the parents at their death, as ascertained by direct inquiry, was such that one-half of them died between 35 and 55 years of age—that is to say, in middle life; but still a larger proportion died after than before the period, so that some lived to upwards of 90 years, and more than one-third of the whole lived to above the period when the majority died. The proportion of earlier deaths was about one-third of the latter number, and was therefore inconsiderable.

"The influence of the acquired causes of disease in the parents has not been inquired into beyond the comprehensive question of unsteadiness of life; and the frequent occurrence of this cause has considerable importance. Of the diseases which had occurred, other than phthisis, we may remark that only rheumatism and asthma were sufficiently frequent to attract attention; and it cannot be presumed that they had any very direct bearing upon the general health of the children. Such diseases as gout, cancer, and various kinds of fevers, were unfrequent; and, with the exception of liver disease, the others were not worthy of attention. Hence, we do not think that these diseases of the parents had either an indicative or causative value in reference to production of phthisis in the child.

"It is of interest to remark how prolific were the parents of phthisical patients, for an average of  $7\frac{1}{2}$  children to each family is much greater than that of the general community; and also that, in so large a proportion, the patient was the first or second child.

"The importance of the first fact, therefore, extends chiefly to the early period of life, and does not show that it had produced a feeble state of the vital powers, such as might have been inferred if the patients were chiefly the last children born. Neither are we entitled to affirm that the powers of the parents were immature when the patients were born; for the age of the parents, at the birth of these children, shows that they were not largely the product of very early marriages, but they were born at a period of life when, in this country, the body is presumed to have approached maturity. It is true that we have shown that a large proportion of the parents had feeble general health, and therefore it might occur that their period of maturity had been deferred beyond the ordinary period; but if debility of system of the parent be presumed to be a predisposing cause of phthisis in the child, and that debility had existed throughout life, it would be more probable that its effect would increase as life advanced, and be more evident in the children of later years.

"Hence, whilst these facts have great interest, I do not think that they help us to any affirmative views of the hereditary nature of phthisis.

"The mortality of the children was considerable; since, when the average age of the parents was 28 years, 40 per cent. of the children had died, and that fact would imply the existence of a feeble state of the system.

"We may now turn to the other aspect of the question, and show how far a



direct transmission of disease might have occurred in the cases in question. It is evident that the solution of this question must rest alone upon the occurrence of phthisis in the parents, since from them alone could the disease have been transmitted. To introduce the occurrence of the disease in the next relatives, viz., the brothers and sisters, would be valueless and superfluous; for, if the proposition were thus—because the brothers and sisters of the patient, as well as the patient, had phthisis, there is a presumption that they had derived it in common from their parents, it would prove nothing beyond what could be derived from the parents alone, by ascertaining their mortality from phthisis, unless we are at liberty to infer that phthisis is a disease which may be communicated through the parent to the child, without the parent having suffered from it—an inference which, although supported by a few facts, has hitherto found no place in the idea of the hereditary transmission of the disease. So, in like manner, we may discard inquiries into the occurrence of phthisis in the uncles, aunts, and cousins, since we have direct testimony as to the parents themselves.

"In only one-fifth of the cases has either of the parents died of phthisis, although they had all lived until middle life; and hence we may support the statement of Professor Walshe, derived from fewer facts, that "phthisis, in the adult hospital population of this country, is, to a slight amount only, a disease demonstrably derived from the parents." The proportion of deaths from phthisis in these 1000 cases was, however, somewhat higher than that which is found in the community as a whole.

"As a general result of the inquiry under this head, we may affirm that phthisis is not necessarily nor usually a disease directly transmitted from the parent to the offspring, but that in a large proportion of phthisical patients the parents and brothers and sisters had experienced feeble health, and a somewhat lessened duration of life. There was not, however, a majority of the cases so connected.

"The next question of interest is the liability of females over males to many of the conditions which have been embraced by this inquiry. There is a singular unanimity in this respect with regard to the most important subjects. Thus, in reference to the parents, more mothers than fathers had children early, had feeble general health both before and after the birth of the patient, and had died early. Of the patients, more females than males had mothers who died early; had most parents, brothers, sisters, and other relatives who had died of phthisis; had parents with one child only; had experienced feeble health and defective appetite throughout life; had been believed to have delicacy of the lungs; were young when their first child was born; had children of feeble health: and had lost most children. Of the less important questions it may be added, that more females than males had suffered from anxiety; had had measles, scarlatina, and hooping cough; had not worn flannel upon the skin; had a very defective education; were of a susceptible temperament; had brown eyes, florid complexion, and fleshy habit; and had experienced coldness of the extremities. Such a preponderance of evils in one sex is most striking, and is not paralleled by any observation hitherto recorded. It also shows how great is the mother's influence upon the health of the children, and how much greater watchfulness should be exercised over the female part of the population.

"3d. Of the group of questions which have a direct bearing upon the health of the patients, it may be remarked:—

"1. That debility of the general system, both at birth and in later life, was not a marked feature, since two-thirds had enjoyed good health and appetite through life; but the remaining proportion of one-fourth had been feeble from birth. Of the periods during growth, that from *æt.* 14 to 21 had a preponderance of cases in feeble health, but only to a moderate degree. Known delicacy of the lungs was found in only one-twelfth of the cases; coldness of the extremities was experienced in one-half of the cases; and there was a well-marked tendency to free perspiration. Leucorrhœa was prevalent.

"2. The menses did not appear too early on the average, neither were they in excess either in time or quantity. Early marriages were not common, but the health of the children was bad and the mortality great in one-half the cases. Abortions were frequent, and the patients were prolific beyond that of the general community. Sterility was found in one-eighth of the married cases.

"3. Immorality of life in the males, for a limited period, was frequent. Syphilis and gonorrhœa had occurred and recurred frequently. Masturbation and seminal emissions had been common. The evils attending occupation were very considerable and important, since in two-thirds of the cases they were complained of. Of these, long and late hours, close and hot rooms, and exposure, were the most frequent. Anxiety was prevalent.

"4. Of the sporadic disease of infancy, by far the most frequent was measles; and neither scarlatina nor smallpox had occurred in one-half of the cases. The occurrence of each of the diseases in adult life was recorded, but it was very unfrequent. Evils resulting from these diseases were very insignificant.

"5. The occurrence of the evidence of scrofulous disease was very rare, except in the instance of enlarged glands; but it is possible that a different result might be obtained from inquiries made at the children's hospital and in institutions where scrofulous cases are congregated. At the Hospital for Consumption there is shown to be no general or necessary connection whatever between marked scrofulous diseases and phthisis.

"6. Of general diseases, those only which were frequent were inflammation of the lungs and rheumatism.

"7. The occurrence of consanguinity in the parents, and of dry-nursing was scarcely found. Asthma was found in one of the parents, and chiefly the mother, somewhat frequently.

"I have not, in this summary, entered into a minute analysis of the results obtained in this inquiry, but have selected only those which occupy a prominent place, or may be grouped together. The results obtained will bear, it is hoped, an importance beyond that to which I have applied them, and will be of greater value when similar inquiries shall have been made upon other large sections of the community. Whilst it has been shown that many conditions have less importance in connection with phthisis than has heretofore been believed, there is much evidence to show that the disease is frequently allied with a state of system defective in vital power and resistance, both of the patient, and his parents, and his children. The large proportion in which none of those states of health could be discovered, is, however, sound proof that phthisical patients are a mixed class, and that the disease arises under very diverse conditions. As to the bearing of this inquiry upon life assurance, I think it may be inferred that there is no such oneness of type of constitution that the most minute historical research could be a sufficient guide as to the future probability of the occurrence of consumption. There is clearly great diversity of causes leading to that issue, and hereditary influence can only be regarded as one of them. If the inquiry could have determined the proportion of persons derived from consumptive parents who would themselves become consumptive, it would have been more to this purpose; but such an inquiry is manifestly impossible. The only safeguard to life offices is, I believe, the estimation, by careful examination, of the degree of health of the proposed assurer; and, above all, the careful examination of the chest by those whose duties make them especially familiar with the subject, and particularly with the early conditions which precede the ordinary manifestations of lung disease."

22. *Cases of Phthisis—Arrest of the Disease, and remarkable gain in Weight.*—Case 1. M. N., aged 17, a servant, residing at Stepney, admitted to Montgomery Ward [Hospital for Consumption and Diseases of the Chest, Brompton], Aug. 25, 1862, under Dr. POLLOCK. Father died of phthisis. Ill two years, cough constant, but very moderate expectoration. Never had hæmoptysis; has lost much flesh; night sweats last three months. Complaints of pain in right side and back, much debility, dyspnoea, vertigo, tinnitus aurium, and dim vision. Pulse rapid, small; tongue clean; appetite good; catamenia had appeared once only, six months ago.

*Physical Signs.*—Right: dulness from the clavicle to the third rib; blowing on inspiration and expiration, and large dry crackle. Some signs in suprapinnous fossa. Base clear. Left: expiration much prolonged, and rough respiration throughout.

The girl stated that she had lived well, had had meat daily, and had not been



overworked. She was ordered a dessertspoonful of cod-liver oil twice daily, and five grains of citrate of iron in infusion of calumbo. The latter was changed a month later for a mixture of citrate of iron and quinine. Full diet consisting of four liberal meals per diem, one of them of meat *ad libitum*, and wine.

The following is her weight table:—

	st.	lbs.
Sept. 1 . . . . .	7	0½
“ 15 . . . . .	7	7
“ 29 . . . . .	7	10
Oct. 13 . . . . .	8	0½
“ 27 . . . . .	8	5
Nov. 10 . . . . .	8	7
Dec. 1 . . . . .	8	13

The progressive increase has been:—

	lbs.
1st fortnight gained . . . . .	6½
2d “ “ . . . . .	3
3d “ “ . . . . .	4½
4th “ “ . . . . .	4½
5th “ “ . . . . .	2½
Last three weeks . . . . .	6

Total gain in 91 days . . . . . 27

Cod-liver oil had been regularly taken for three months before admission.

On November 12, the following were the physical signs on the right side: Dulness, as before; dry, leathery, creaking sounds have replaced the cracking under the clavicle; below this is heard a whiffing, dry inspiration; no moist sounds anywhere; the catamenia are still absent. This patient expresses herself as much relieved, and seems not to have much the matter with her. The night sweats ceased long ago.

*Remarks by Dr. Pollock.*—This seems to be a case of chronic tubercle in one lung, derived hereditarily, with little activity of the constitutional mischief, and arrested before softening had occurred to any extent, and before the isolated deposits had coalesced to form a cavity. On the eve, as it were, of such occurrence, the disease stopped short, the tubercle tending to dry, local irritation ceasing, and the nutritious processes of the body proceeding rapidly to replace the waste undergone by the tissues. It is important to observe that this patient was not taken from poverty and placed in the midst of plenty, for her living had been previously good; but it is equally important to remember that she was taken from a life of daily labour and anxiety, and placed where there was no necessity of any exertion of mind or body, and where every want was cared for. The remedial influences were, therefore, many in addition to those purely medicinal. She had taken cod-liver oil for three months before admission.

The following case presents many points of similarity:—

Case 2. M. A. G., aged 15, tailoress, admitted under Dr. Pollock, August 26, 1862, Harewood ward. Has always lived at home; the family being in comfortable circumstances, had meat daily. Of middle height, chest pretty well shaped, hair light brown; of lymphatic temperament. Her father, mother, and several maternal uncles and aunts, died of phthisis. Ill three months, cough constant for that period, with slight expectoration. No hæmoptysis; catamenia established at 13, now absent for five months; no sweatings; complaints of cough, debility, flushing; appetite indifferent; tongue clean; pulse quiet.

*Physical Signs.*—Left: dulness on percussion; humid crepitus over the whole front and axilla; also in supra-spinous fossa; rough respiration at base posteriorly. Right: percussion slightly dull; clicking sounds in supra-spinous fossa, and along spine; posterior base pretty clear. She has considerably lost flesh.

The following is her weight table:—

	st.	lbs.
Sept. 1 . . . . .	6	13
“ 15 . . . . .	7	4
“ 29 . . . . .	7	8
Oct. 13 . . . . .	7	13
“ 27 . . . . .	8	1
Nov. 10 . . . . .	8	6
“ 24 . . . . .	8	7½

The progressive increase has been:—

	lbs.
1st fortnight gained . . . . .	5
2d “ “ . . . . .	4
3d “ “ . . . . .	5
4th “ “ . . . . .	2
5th “ “ . . . . .	5
6th “ “ . . . . .	1½

Total gain in 85 days . . . . . 22½

This girl is also now in a very comfortable condition, coughs little, sleeps well, and expectorates scarcely anything. The catamenia have not been re-established.

The physical signs in this case underwent an alteration coincident with the improvement in health. On November 12, a careful examination gave rough, dry inspiration, and prolonged expiration over left side, instead of the humid crepitus formerly noticed.

The points of resemblance in the two cases (Dr. Pollock said) were: In both the disease was hereditary; occurred at the period of growth; in neither had there been hæmoptysis; the absence of fever, and the similarity of temperament (the lymphatic); the moderate amount of expectoration; the unimpaired condition of the digestive functions; the suspension of uterine activity; the limited amount of disease in the lung; and the characters of, and changes in, the physical signs denoting a deposit in the lung undergoing alterations rather of an absorptive than of a softening nature. A theoretical view of the two cases implies that a slight injury having been sustained by the lung, not only did the deposit undergo changes indicating a tendency to dry up, and leave behind merely the inorganic elements of tubercle, but the still more important fact, that the impairment of nutrition, in which the morbid changes originated, had ceased, and that the tissues of the body were again being built up of healthy material. Such a condition may fairly be called an "arrest" of diseased action, and exhibits, hopefully to the practitioner, clear evidence of the reparative powers and tendencies of the system.—*Med. Times and Gaz.*, Jan. 24, 1863.

23. *Clubbed Fingers in Diseases of the Chest.*—M. TROUSSEAU carefully points out every year to his pupils the peculiar deformation of the hand, called *hippocratic* or *clubbed finger*, which, since the most remote antiquity, has attracted the notice of pathologists. Ancient writers thus describe the appearance of the fingers in consumptive subjects: "*Tabidis unguis contrahuntur*, or "*tabidis unguis aduncus*." In 1832, M. Pigeaux, a Paris practitioner, again invited attention to this, in some measure, forgotten symptom, and endeavoured to establish with precision its semeiotic value. M. Trousseau describes it as follows: It is a shortening of the third or ungual phalanx, attended with inspissation and transversal enlargement of the digital extremity. The nail, at the same time, becomes incurvated and the point of the finger assumes the shape of a club, or more properly, of the head of a serpent. The deformation is sometimes a slow process, but occasionally takes place very rapidly, and not without pain. M. Trousseau remarks that, not having observed clubbed fingers in genuine scrofula, nor in uncomplicated abdominal tuberculosis, he inclines to consider the symptom as special to chronic affections of the chest. He has met with it in the second and third stages of pulmonary consumption, and in young subjects suffering from chronic pleurisy. The sign is not, therefore, exclusively pathognomonic of phthisis; but the clubbed finger is much more frequently observed during the progress of that affection, and the unciform nail becomes better marked in proportion as the disease is in a more advanced stage. In the main, M. Trousseau opines that the hippocratic finger affords valuable presumptive evidence of the existence of pulmonary consumption. He ascribes the alteration of shape to hypertrophy of the bone, or at least to preternatural development of the fibro-cellular tissue in the pulp of the finger, invading the thumb and index, first of the right and afterwards of the left hand; the other fingers becoming successively affected in the order of their development, the little finger thus preserving sometimes its natural form, while all the others are already distinctly clubbed. M. Caron recently brought the question before one of the medical societies of Paris; and although he agrees with MM. Pigeaux and Trousseau as to the semeiotic import of the symptom, he connects it also with the scrofulous diathesis. In a recent number of the *Revue Médicale*, a new explanation of the deformation of the fingers is given by M. de Saint-Maclout. He observes, that in cyanosis, as M. Gintrac has before correctly remarked, the digital extremities sometimes assume the hippocratic character. The disturbance of nutrition in the cyanosis is consequent on the admixture of venous with arterial blood; and it does not appear improbable that the same



morbid confusion of the two kinds of blood also induces the clubbed form of the tips of the fingers in phthisis. M. de Saint-Maclout adduces in support of his opinion M. Natalis Guillout's researches on the *disarterialization* of the blood which passes through the lungs in tuberculosis.—*British Med. Journal*, Dec. 13, 1862, from *Jour. de Méd. et de Chir. Prat.*

24. *Generalized Emphysema*.—Under this name Mr. HENRI ROGER, in a memoir read before the Academy of Medicine in Paris, has described a rare form of disease, occurring generally in children. In the course of an acute inflammation of the respiratory organs, there is suddenly developed, at the side of the neck, a soft tumour with characteristic crepitation; the tumour is at first circumscribed, but soon extends in all directions through the subcutaneous areolar tissue. In such cases, M. Roger says, the emphysema has commenced in the lung, has traversed the areolar tissue of the mediastinum, and finally has reached the subcutaneous tissue. This condition, hitherto scarcely recognized, has been noted by M. Roger in nineteen cases, of which ten were observed and published by him and M. Blache, and nine have been collected by him from various sources.

Generalized emphysema occurs exceptionally in old age, very rarely in adults, but with comparatively great frequency in young children: fifteen of the cases were in children under four years of age. In nearly one-half of the cases, it was preceded by hooping-cough.

In generalized emphysema, there is no spontaneous production of gas by morbid fermentation, as happens in certain gangrenous affections. The air comes from the respiratory organs, by rupture of the air-tubes or laceration of the parenchyma of the lungs. On *post-mortem* examination, emphysema of all varieties—vesicular, interlobular, and interlobular—is found in the lungs; the mediastina are found riddled with vesicles and bubbles of air: and at the same time air is found in the subcutaneous areolar tissues. The emphysema of the mediastina arises either from the direct passage of the respiratory air through the laryngo-tracheal tube, or from the extension of the pulmonary emphysema. When a lung is highly emphysematous both in its interior and at its surface near the exit, emphysema of the mediastina may arise in two ways. 1. The subpleural mass of air, pushed on by fresh supplies which have escaped during forcible attempts at respiration, raises the pleura without rupturing it, and reaches the point of reflection of this membrane; having arrived here, it passes into the cellular tissue of the mediastinum. 2. A deeply seated distended vesicle ruptures, and the air passes along the cellular sheath of the bronchi and pulmonary vessels to the root of the lung, where it enters the mediastinum. This migration of the air from the lung to the mediastinum, and from the mediastinum to the external areolar tissue takes place during the paroxysms of suffocative dyspnoea which attend double pneumonia, or during the convulsive paroxysms of hooping-cough: the air, compressed by the violent respiratory efforts between the termination of the air-passages and the closed glottis, breaks through the least resisting parts—those parts of the pulmonary parenchyma which have undergone structural change in consequence of the primary disease.

Generalized emphysema, when it occurs, usually appears suddenly, at the acme of some acute affection of the air-passages, without any peculiar premonitory or concomitant symptoms. The first symptom is a tumour at the base of the neck, under the jaw, and even extending on the cheek: it is soft, and yields to the finger and ear a pathognomonic crepitation, which is sometimes increased by coughing or crying. In a few hours, the emphysema spreads in all directions, making the patients appear as if they were anasarctous; the general symptoms are, as a rule, aggravated at the same time.

This form of emphysema is generally fatal: death occurred in fifteen cases out of the nineteen. Death occurs in one or two days, sometimes even in a few hours or minutes; it is rarely delayed several days. But the unfavourable prognosis depends less on the emphysema than on the severity of the disease which has given rise to it.

In the treatment, the first indication is to calm the violent respiratory efforts which give rise to the emphysema; and this is to be fulfilled by the use of full

doses of digitalis, with opium. The absorption of the infiltrated air must depend on the natural powers of the system; but it may, perhaps, be hastened by stimulant frictions over the affected parts; and, in cases where the external emphysema is very severe and oppressive, an exit may be given to the air by punctures made with a capillary trocar.—*British Med. Journal*, June 7, 1863, from *Révue de Thér. Méd.-Chir.*, 1 Avril, 1862.

25. *Enormous Spleen*.—Mr. NUNN showed to the Pathological Society of London, Dec. 2, 1862, a section of a spleen, which weighed thirteen and a half pounds. Its transverse circumference was thirteen and a half inches; its longitudinal, thirty-two. It occupied one-half the cavity of the abdomen. The patient died of exhaustion and peritonitis. There was also a large quantity of fluid in the abdominal cavity.

Dr. Murchison asked if the blood had been examined.

Mr. Spencer Wells said that, more than twenty years ago, Dr. Robert Williams had made known the remarkable power exercised by bromide of potassium in reducing enlargements of the spleen, and had led to the admission of this remedy to the Pharmacopœia. He (Mr. Wells) had seen some extraordinary instances of this power, in cases of enlarged spleen following the fevers of the Mediterranean. In more than one case, the process of diminution was distinctly traced inch by inch, and a spleen which had reached the pubis and right ilium, had returned to a very small size under the use of eight grains of the bromide given three times a day. He would, therefore, like to know if this remedy had been tried by Mr. Nunn; and if so, and it had proved useless, whether (as the patient was apparently being killed by the splenic tumour, and by nothing else) the question of removal by surgical operation had been considered. The spleen could be removed very easily in dogs and other animals; they seemed to remain perfectly well without a spleen, and there certainly could not be more difficulty in removing a large spleen from the human body than a large ovarian tumour. For his own part, if he met with a case where a patient was evidently being killed by a large spleen, where all remedies had proved useless, and where the dying person was willing to run the risk on the chance of saving his life, he would certainly be disposed to remove the tumour.

Dr. Murchison thought there would be more difficulty in securing the splenic vessels than was met with in securing the vessels of an ovarian tumour.

Dr. Wilks said Mr. Wells' suggestion might prove a very valuable one. People, undoubtedly, did die of enlarged spleens, who had no other disease. The bromide of potassium was only useful in those forms of enlarged spleen which followed intermittent fevers. In the simple hypertrophy of the spleen, of which he believed Mr. Nunn's specimen to be an example, and in the lardaceous form of disease, the bromide was equally useless. In those cases it was very well worth while to consider whether a surgical operation might not save life.

Dr. Gibb had once removed an enlarged spleen from a dog. The animal lived six days, and then died of peritonitis.

Mr. Nunn said that the blood had not been examined.—*Med. Times and Gaz.*, Dec. 13, 1862.

26. *Disease of the Supra-renal Capsules without Bronzing of the Skin*.—It is supposed by some, that disease of the supra-renal capsules alone is not the cause of the symptoms of Addison's disease, but that it is disease spreading from them to the contiguous semilunar ganglia and solar plexus. But, in the following case, "the semilunar ganglia were more than usually involved. The right one was actually imbedded in the capsule." Here, then, is a well-marked case of disease of the capsules, affecting also the great ganglionic centres in the abdomen, and yet the most marked symptom is wanting. This case will, doubtless, be cited by those who do not believe in Dr. Addison's views, as an instance contradictory to his theory. But although the discoloration of the skin is the most marked symptom, it has never been considered the most characteristic. Dr. Wilks says, in a paper in the last number of *Guy's Hospital Reports*, "the discoloration of the skin, although a striking feature of the complaint, was not



the main one insisted on by Addison; but since it is that which can be portrayed in a drawing, and, consequently, apt to strike the eye on turning over the pages of a monograph, it is not surprising that it was at once regarded as the most remarkable part of the complaint, and would, therefore, be especially dwelt upon in our ordinary mode of communicating to one another the facts relating to the disease, until, at last, the erroneous opinion would be reached that Addison's disease and discoloration of the skin were convertible terms. In the same article, Dr. Wilks relates a case (Case 8 of his series) in which there was disease of the capsules, and no change of colour of the skin. Yet a most characteristic symptom, "an utter prostration of strength," was not absent.

Dr. Harley considers that disease of the supra-renal capsules is not fatal; but, he says, disease may extend from them to the semilunar ganglia or solar plexus, or may excite such an amount of irritation in them as to induce secondary disease, which, and not the contemporaneous affection of the capsules, may cause death. He states that a rat, from which he had removed both capsules, lived in good health three years after the operation, and died at the end of that time of old age. He says, that in all cases in which the animals have died after removal, it is clearly due to the effect of the operation, and not to the loss of the capsules. The fact that rats, in which the capsules are loose and easily removed, generally recover, whilst guinea-pigs and rabbits, in which they are intricately involved in the abdominal plexus, frequently die, tends to favour the idea, that death is due to the operation alone.

In the article already referred to, Dr. Wilks writes, "the symptoms cannot be due simply to a destruction of the organs, since this must have happened, in many instances, long before death occurred, and is one reason, as before said, to suggest some implication of the organic system of nerves." In the case we are about to relate, as in case 8 of Dr. Wilks' series, before alluded to, the disease was in an early stage. Dr. Wilks says (*op. cit.*, p. 13): "A sufficient number of cases have now been observed to suggest whether the change in the skin does not depend on the chronicity of the disease; and that, if it should progress rapidly, no discoloration of the skin would be observed, the symptoms being merely those of asthenia."

William T., a publican, aged 31, was first seen at home by Dr. Gull on December 26. The case being a very obscure one, the patient was sent to the hospital, and admitted on December 27. He died on the 29th, before he had been seen a second time by Dr. Gull. As far as could be learned he had been ailing about four months, or, at least, there was no symptom to attract attention before that. He then began to get weak, pale, and thin. A medical man was called in, who gave him medicines with varying effect; and it was his opinion that he was consumptive. At this time he often had sickness, his appetite was bad, and he also at times complained of pain in his back. He had also various nervous symptoms, which were differently described; it being stated that he had lost sensation on one side of his face, and could not eat so well on that side; and that he had numbness in his legs, and that he could not hold his water perfectly. He still continued at his employment. About a month before his death he became much worse, with all the above-named symptoms, and he then went to Greenwich for change of air. He still became worse, however, the pain in his back becoming more severe. He returned home, but was obliged to ride from the railway station to his house, a short distance. On December 26, Dr. Gull was requested to see him, and advised his removal to the hospital. He was admitted the next day, December 27. He was so weak that it was necessary to carry him to the ward. He then brought up all the food he took, but rallied somewhat the next day. The next day Mr. Stocker saw him, and found him dying, after having vomited. Mr. Stocker said, that from this, his only visit to the patient, he did not know whether he was suffering from stomach, cerebral, or supra-renal disease.

The man's face was sallow, or of a yellowish cast, such as is seen in cachectic persons, but not sufficiently well-marked to attract attention. His wife said that his skin was sallow, but that no one had voluntarily remarked any change of hue.

The patient, on admission, stated that he had been ill six weeks, this being the time in which he had been incapacitated for work.

*Autopsy, by Dr. Wilks.*—Both supra-renal capsules were converted into large masses of an albuminous substance. They were larger than any which had yet been found at the hospital, and were composed of a material of a much more recent formation than had been before observed. They had contracted adhesions to the parts around, as to the liver, etc., from which the right one had to be torn. The right capsule was also adherent to the vena cava, and the coats of the vein were involved. On opening this vessel, there was seen a raised rough patch where the coats had actually been destroyed; and the disease was penetrating their interior. There were also contiguous lymphatic glands enlarged. The diseased organs, or the masses of material which took their place, were not weighed, in consequence of their non-removal from the kidneys, but they, probably would have weighed as much as two-thirds the size of the kidney to which they were attached. The substance composing the diseased organs was a softish material, of a white colour, of the consistence of tallow or lard. It cut with a smooth surface, but was easily friable, and could be rolled up into a softish mass. It was of the same character as had been met with in previous cases, but not, as in them, associated with any yellow or so-called tuberculous or cretaceous material. In fact, there was no deposit within them indicating that the disease was of any age, as it had not undergone those changes which time brings about. The deposit had, no doubt, been formed in a comparatively short period. The diseased masses were so contiguous, and the material forming them so encroached on surrounding parts, that the semilunar ganglia were more than usually involved. The right one was actually imbedded in the capsule, and many of its nerves passed into it. The left was in contact, and its nerves merely involved.—*Med. Times & Gaz.*, Jan. 24, 1863.

27. *White Fibro-serous Discharge from the Thigh.*—Dr. A. B. BUCHANAN communicated to the Royal Medical and Chirurgical Society (Jan. 27, 1863), the history of a remarkable case of discharge of white fibro-serous fluid from the posterior cutaneous surface of the thigh, at present under his care in Glasgow. The patient was a woman, in other respects in fair health, aged 46, and mother of six healthy children. The discharge was white, like milk, and flowed from excoriations produced by the rupture of small vesicles scattered over the back of the thigh, and particularly from an infiltrated patch, of the size of the palm of the hand, on which the vesicles and excoriations were most abundant. The milky fluid coagulated a few minutes after being passed. It contained a fatty molecular base, similar to that of chyle, and a few nucleated cells. The results of a chemical analysis closely corresponded with those yielded by “chylous urine.” The patient dated the commencement of her malady from a shivering-fit twenty-one years ago, shortly after which she noticed a “lump” in the situation of the affected surface. Fifteen years ago vesicles appeared, from which a brownish fluid exuded on scratching. For the last six years the discharge has been milk-white, and is always worse in wet weather, and while the patient is walking about, when its amount may be half a pint per hour. At night it ceases to run, recommencing about an hour after the patient rises in the morning; but in dry or frosty weather it may occasionally be absent for a week or two. The veins of the affected limb are varicose, but no enlargement of the lymphatic glands can be detected. The author succeeded in controlling the discharge for two months by a long elastic stocking, the use of which, however, had to be discontinued, owing to severe lancinating pains in the thigh. Immediately on ceasing to use the stocking the uneasy sensations subsided, and the discharge commenced anew. After remarking that cases of this affection were extremely rare in temperate latitudes, Dr. Buchanan pointed out, by referring to several recent examples, that they were probably more frequent in warm climates. He cited, however, and gave an account of two unequivocal cases of the same affection, both dating from the seventeenth century, one of which, in a male subject, occurred in Germany, and the other, in a female, in France. While referring to various pathological theories, the author fully recognized the identity of the above disease with “chylous urine,” or, as he would prefer to call it,



"white fibro-serous urine." He objected particularly to the theory which identified white fibro-serous discharges in general with chyle. He gave his reasons for believing that it was more natural to consider them as equivalent to the white liquor sanguinis—to transudations of the serum of the blood during its periodical milkiness after meals, but with certain modifications inseparable from the mode of its secretion. Thus, while the water, albumen, and salts, and possibly also the fibrin, would come from the blood directly, he showed that the cells present in the discharge must be derived from the secretory layer of the skin, or from the epithelium of cutaneous glands. He contended that the molecular base was unquestionably derived from the blood; but that the molecules could not be conceived to filter directly through the walls of the vessels without presupposing the existence of a uniformly and intensely milky serum while the discharge was flowing, even at long intervals after meals. To avoid this difficulty, it might be supposed that the epithelial cells of the glands of the skin had the power of separating, by a perverted function, fatty matter from the blood, much as the epithelial cells of the intestine are concerned in filtering it into the lacteals. The cells would then become gorged with fatty molecules, and the uniformly white colour of the discharge would be accounted for without its being necessary to suppose that the liquor sanguinis was ever milky except, as usual after meals. On this view, white fibro-serous discharges would depend immediately on deranged glandular action, and the foregoing case might be defined as a rare functional affection of the glandular apparatus of the skin. The paper was illustrated by specimens of the milky discharge, and by a drawing of the diseased surface.—*Med. Times and Gaz.*, Feb. 7, 1863.

28. *Urine in Hydrophobia*.—Dr. HELLER, in *Wien. Med. Wochenschrift*, gives the following analysis of the urine of a lad six years old, who died of hydrophobia. The quantity operated on was about one pound. Its specific gravity was 1036, and very acid. The sediment consisted of uric acid, and was in greater abundance than Dr. Heller had ever met with. No urate of ammonia was found in the sediment. Of albumen, and of carbonate of ammonia, there was only a trace. It contained no sugar. The uropheine and uroxanthine were slightly increased. In the clear urine was also contained much uric acid. The urea was greatly increased, and was equal in quantity to what is met with in meningitis. The chlorides were very slightly diminished; the sulphates greatly increased. The earthy phosphates were much, and the alkaline phosphates slightly, increased.—*Brit. Med. Journ.*, Jan. 3, 1863.

29. *Effects of Diet and Drugs in the Treatment of Diabetes Mellitus*.—Dr. ANDREW SMART gives the following results, obtained from a series of observations—in two cases of diabetes mellitus treated by Dr. Laycock, in the Royal Infirmary, Edinburgh—instituted with the object of determining the sugar-producing agency of certain articles of diet.

The following articles are arranged in the order in which they were found, Dr. S. states, to act as sugar producers:—

"1. *Sugar* (cane), whether used as an article of diet or medication, besides undergoing transformation into grape sugar, acted as a powerful diuretic and stimulant to the morbid production of sugar. It also greatly increased thirst.

"2. *Rice*, contrary to general belief, was next to sugar in its influence on the production of diabetic sugar and increase of urine. Its action in these respects was much greater than can be explained by reference to the proportion of starch and sugar which it contains.

"3. *Potatoes* were inferior to rice in their sugar and urine-producing powers, but exerted a markedly greater influence than the ordinary sorts of wheaten bread.

"4. *Gluten Bread*.—We have not succeeded in ascertaining the exact composition of the bread usually sold under this name. It is decidedly sweet to the taste (but this saccharine quality does not depend on admixture with sugar). It is also very palatable, and preferred by diabetic patients to ordinary bread. It has been much recommended in diabetes, under the belief that, as an article of food, it operated more mildly in exciting and maintaining morbid action.

This opinion was contra-indicated by repeated and careful trials, the results of which demonstrate that its influence as a sugar eliminator exceeds that of ordinary white and bran bread.

"5. *White Bread*.—The trials with this bread, as with the others, were extremely varied, but invariably with like results. It undoubtedly produced less sugar than gluten bread, but was superior in that respect to brown bread and oatmeal. It is interesting to know that the amount of sugar found in the urine invariably maintained a fixed relation to the combined proportions of sugar and starch contained in the bread, the proportion of diabetic sugar always exceeding that of the starch and sugar elements as two to one. Thus, for example, if the amount of bread taken in twenty-four hours contained, say 500 grains of combined sugar and starch, and no other substance interfered with the experiment, a careful analysis of the urine during the same period yielded, with remarkable uniformity, nearly double that amount, *i. e.*, somewhere about 1000 grains.

"6. *Bran Bread*.—This bread differed in no important particular, except in its milder action in the production of sugar. But this difference was trivial.

"7. *Oatmeal*.—The influence of this cereal, when given weight for weight with the others, was so decidedly less that there can be no doubt in placing it last in the list now given. It diminished the amount of urine while rather heightening its density, but, as an article of diet, it was not relished by the patients.

"8. *Eggs*.—When the patients were put on an exclusively egg diet, the amount of urine and sugar progressively diminished, and the latter would probably have entirely disappeared from the urine had it been possible so to restrict the diet for a sufficiently lengthened period.

"9. *New Milk* contains sugar, as sugar of milk; but, judging from all the trials which were made with it, we were led to infer that this constituent does not undergo glucose transformation. Under this, as in egg diet, the sugar progressively disappeared from the urine. But the great difficulty always experienced was, to confine the patients for some time to one or two kinds of food.

"10. *Animal Diet*.—When eggs, milk, fish, beef, mutton, and all other kinds of animal diet, were given either alone or in combination, the following results invariably followed: 1. Marked decrease in the elimination of sugar and secretion of urine, which was progressive with the continuance of the diet. 2. Sense of hunger and thirst greatly lessened. 3. Increased density of urine.

"11. *Vegetables*, such as cabbages and turnips, sensibly augmented the production of sugar, but to a much smaller amount than is generally supposed. They were also apt to derange the digestive system. Cabbage invariably produced diarrhoea in one of the patients, and in the other indigestion and flatus.

"12. *Cod-liver Oil and Fats*.—Their use was followed by the same results as were found in the animal diet trials; but they could not be taken by the patients for some time, or in considerable quantity, without inducing nausea.

"13. *Mixed Diet*.—The production of sugar under this diet, of whatever substances it may be composed, was found to be invariably proportional to the amount of sugar and starch contained in the articles which were used.<sup>1</sup>

## "II. Second Series of Trials to Determine the Influence of Remedies on the Elimination of Diabetic Sugar.

"1. *Pernanganate of Potash*, allayed thirst, lowered the density, but increased the amount of the urine and also of the sugar.

"2. *Sesquinitrate of Iron* stimulated appetite for food; did not allay thirst; did not materially influence the amount of urine, but increased that of the sugar.

<sup>1</sup> *Porter and Ale*.—It is generally supposed that all malt liquors very powerfully stimulate to the morbid production of sugar in diabetes mellitus; but the experiments made with ale and porter do not support that opinion. Their use, to the extent of twelve or twenty-four ounces daily, is attended with little more than an appreciable increase in the amount of sugar. The rate of increase, as in the other articles, was ascertained and recorded.



"3. *Glycerine* markedly increased thirst and the amount of urine; lowered density of urine, but total amount of sugar greatly increased.

"4. *Chloroform*.—This was exhibited by inhalation, which was repeated every two hours during the experiment. Quantity of urine greatly increased; its density lowered, but total amount of sugar in twenty-four hours increased. Chloroform increases sugar simply by acting as a diuretic.

"5. *Sulphuric and Chloric Ethers*.—Both these agents operate as chloroform, but in a much less marked degree.

"6. *Strychnia*.—The experiments with this powerful agent were begun by administering  $\frac{1}{10}$ th of a grain thrice daily, and the dose progressively increased until its physiological action on the nervous system became incipiently apparent.

"The result was a progressive and commensurate decrease in the amount of urine and sugar. The patients' diet during the course of this and the other trials of remedies was uniform. The patients' general health was good, and they gained weight."—*Med. Times and Gaz.*, Feb. 14, 1863.

30. *Diabetes*.—Dr. MÜLLER, of Hanover, read a paper before the Congress of German Naturalists and Physicians at their last meeting, on diabetes, with details of thirty-one cases observed by him: twenty-three of the patients were men, and only eight women. Amongst the causes, masturbation was most frequent. Twelve of the patients died, nine of them rapidly, of tubercular disease, and three of Bright's disease. As regards the treatment, animal food and gluten had proved very unsatisfactory, and a mixed diet was far preferable. Tannin, either alone, or with aloe and rheum, gave good results, and small doses of opium at night were advisable. The use of the thermal springs of Carlsbad produced amelioration in every one of the cases; but the benefit was not permanent: in one case it lasted for nineteen months, in another for ten months. The largest quantity of urine observed amounted to nineteen and a half quarts, the largest quantity of sugar to ten per cent.; the highest specific gravity was 1.058. In five cases there was amblyopia and morbus Brightii. An animated discussion followed the reading of this paper, and several of the Carlsbad physicians communicated their experience on the use of the waters of this place. Professor Seegen said that he had treated more than forty cases of diabetes with Carlsbad water, that there had been a diminished amount of urine and sugar, and the weight of the body had become augmented, but a complete cure had never been effected. Most of the patients in question used the Carlsbad treatment for several years successively, and each time with benefit. The improvement was generally rapid, and lasted for a considerable time. Dr. Fleckles said that, if diabetes was complicated with anæmia, the use of Franzensbad, Pyrmont, or Spa, was advisable after a course of the Carlsbad treatment.—*Med. Times and Gaz.*, Dec. 13, 1862.

31. *Action of Sesquichloride of Iron on Phthisis*.—Dr. RICHARD PAYNE COTTON administered the sesquichloride of iron in twenty-five cases of uncomplicated phthisis furnished by his own wards in the Consumption Hospital. Of this number, eight were males, and seventeen females. Eleven were in the first, four in the second, and ten in the third stage of the disease. None of the cases presented any very remarkable feature, all of them being examples of the ordinary run of patients affected with chronic consumption, care having been taken to exclude those in whom there existed either any special complication or secondary affection which demanded a different treatment.

The dose consisted of ten or fifteen minims of the tinctura ferri sesquichloridi administered in water two or three times a day, and was continued for periods varying from three weeks to four months. Cod-liver oil was also taken sometimes by a few of the patients; but, as a general rule, this substance was avoided, at least temporarily, with the view of not complicating the result.

Twelve patients improved greatly, five improved slightly, and eight experienced no relief whilst under treatment. Ten of the seventeen more or less improved cases did not take any cod-liver oil; but, by subsequent observations, it

was sufficiently evident that the greatest good was brought about by the combined influence of these two substances.

Were I to be asked from which of the ten medicinal agents already experimented upon, I had observed the most benefit, I should unhesitatingly fix upon the sesquichloride of iron. For some years, indeed, I have been in the habit of using this substance extensively, both in private and hospital practice, and some of the most happy results I have met with in the treatment of phthisis have certainly taken place during its administration. In no instance have I seen any reason to connect with its use the occurrence either of hæmoptysis, or any other active symptom. In passive hæmoptysis, indeed, I have often found it a very useful remedy; whilst it often helps to check excessive secretion, whether from the skin or the mucous surfaces.

The following are Dr. Cotton's conclusions, derived from his experience, as to the effects of iron upon phthisis:—

"1. That iron is a very valuable remedy in consumption—perhaps more valuable than any other with which we are at present acquainted.

"2. That of the numerous preparations of iron, the sesquichloride is the best, its astringent nature being generally well suited to many symptoms of the consumptive patient."—*Med. Times and Gaz.*, Jan. 24, 1863.

32. *Use of the Alkaline Lactates and of Pepsin in Indigestion.*—Dr. PÉTREQUIN, of Lyons, advises the employment of the alkaline lactates, and especially those of soda and magnesia, in the treatment of the functional disorders of the digestive canal. He was induced to try these salts in the treatment of dyspepsia, because they are natural to the digestive tube, and the alkaline compound which results from their use is an integral part of the chemical elements of digestion. Practical investigations have confirmed these theoretical views, and an experience of twelve years has convinced Dr. Pétrequin that the use of the alkaline lactates promotes the flow of the digestive juices, regulates their secretion, renders the digestive function normal, and restores the languid or perverted action of the stomach and intestine by enabling them to produce regularly the liquids necessary for the digestive process. The *lactate of soda* is very soluble in water, and crystallizes only with difficulty, and as it is very deliquescent it is prepared with sugar, which enables it to be preserved. The *lactate of magnesia* has been obtained in silky masses, which are very light, very white, and composed of very slender crystals; it is unalterable in the air, of sparing solubility, and without smell or taste. Dr. Pétrequin employs the alkaline lactates in the disorders occurring in any of the three principal phases of digestion—namely, the buccal, the stomachal, or the intestinal. In the first, the disorder may depend either on the alteration of the saliva, which may become acid, or on the diminution of the secretion of this fluid. In both cases the patient should take, before meals, two or three pastilles, which should be slowly melted in the mouth, and the same should be done after meals. The disorders which correspond to the stomachal or gastric phase of dyspepsia are more numerous, and require some modifications in the use and administration of the medicine. In the acid dyspepsia, Dr. Pétrequin advises a combination of lactate of magnesia and of lactate of soda with sugar; and in what he calls neutral dyspepsia, which he attributes to deficiency of the gastric juice, he combines pepsin with the powders or pastilles. During intestinal digestion, the alkaline lactates may still be advantageously employed, although the functional lesions of the intestine are generally less easily accessible to our remedies than those of the stomach. "We know," says Dr. Pétrequin, "that magnesia produces excellent results in the diarrhœa of children at the breast, and the alkaline lactates are no less efficacious. I have also observed their curative powers in the diarrhœa which supervenes in convalescent patients, when they resume the use of food, and when their stomach is still weakened. I have also several times employed them successfully in the diarrhœa of persons who were enervated by excessive fatigue; and I have observed the same results in enteralgia, enteric flatulence, and the purging which is symptomatic of intestinal indigestion."—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *L'Union Médicale*, Aug. 21, 1862.



33. *Tænia treated by Areca Nut.*—Dr. EDWIN MORRIS communicated to the Midland Branch of the British Med. Assoc. the following case of this:—

John T., aged 46 years, for several weeks past had been losing flesh, had occasional headaches, nausea, and feeling of faintness, with loss of appetite. The month of April last, he had passed several pieces of tapeworm. After fasting from breakfast the previous day on April 30th, at 6 A. M., four drachms of powdered areca nut was taken in milk. Within two hours afterwards he passed six yards and a half of worm. For more than a week afterwards, no more worm coming away, four drachms more of the areca were taken in a similar manner. Within an hour six yards more of worm were passed. From the flat regular size of the worm, it was evident that the head had not yet been expelled. After previously fasting, a purgative was given; and early the next morning six drachms of the areca were given as before, and in a quarter of an hour two yards and a half more worm were passed alive, making altogether fifteen yards. Upon examining the worm, it gradually tapered down to a small bulb about the size of a pin's head. The man has been much better since, and no more joints have been passed.

Dr. Morris's attention was first called to the use of the areca nut in tænia by the article of Dr. Barclay in *British Med. Journ.*, Aug., 1861.

Dr. M. remarks that for the expulsion of tapeworm a variety of remedies have been used—and successfully. Those, however, which have been found of the greatest service have been oil of turpentine, kousso, oil of male fern, and lastly, areca nut. Whatever remedy is used, it will be utterly useless unless the head is expelled; for the worm renews itself rapidly after portions of it have been removed, by the formation of new joints at its neck; and will very soon regain its original size. It therefore follows that those medicinal substances which expel the head, are the most valuable. It is a singular fact that few medical men have ever seen the head of the tapeworm, notwithstanding that the disease is frequent enough. \* \*

If you will take the trouble to examine the preparation I have placed before you, and observe the thread-like substance of the neck to which the head is attached, you will not wonder at the difficulty there is in finding the head, and how rarely it is obtained; you will be more likely to succeed in expelling the head, if a brisk purgative is given before the areca is taken.

I was fortunate in having obtained so long a piece of the neck of the worm, as it enabled me to easily find the head when placed in water; having removed the head with a portion of the neck attached, and placed it under the microscope with a one-inch power, I readily examined it as a transparent object. The neck is narrow and flat, terminated by a small bulb (cephalic bulb) with black specks, which is the head of the worm; upon carefully examining the specks, they are found to be the four suckers, and are funnel-shaped and easily recognized. The necks of the two extreme suckers ramify in various directions, and appear to join the other suckers. Upon using a higher power (Smith and Beck's fifth) several hooklets may be seen, by which the worm attaches itself to the mucous membrane of the bowel before applying its suckers. I have made a sketch of the head as it appears under the microscope, which gives a tolerably accurate representation of the head with its four suckers and hooklets.

[The seed of the common pumpkin beaten into a pulp with sugar, and taken in the morning fasting, is a very reliable remedy for tænia. We have used it with complete success.—EDITOR.]

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

34. *Traumatic Tetanus successfully treated by Nicotine.*—In our previous number (p. 221) allusion was made to a case of tetanus successfully treated at Baggot St. Hospital by nicotine. Mr. TUFNELL has since communicated to the

Surgical Society of Ireland a history of the case, which we extract from our contemporary, the *Dublin Medical Press* (January 7, 1863):—

"J. D., æt. 42, a tall, muscular man, a sewer maker, of very intemperate habits, was brought to the City of Dublin Hospital on the evening of the 28th of February, 1862, suffering from a severe compound fracture of the right radius, three inches above the wrist. The accident had occurred about twenty minutes before admission, and was occasioned by the falling of a heavy flagstone upon the forearm. There was a good deal of laceration of the soft parts, and considerable hemorrhage. The wound, which was three inches long and triangular in shape, had its base to the ulna, and was filled with blood and clay; the upper end of the lower fragment of the radius was thrown outwards upon the ulna; the hand was pronated and curved inwards.

"The wound having been carefully cleansed, the fracture was adjusted, and the arm placed upon a pistol splint; water-dressing with flannel-tailed bandage surrounding all. Wine and an opiate were given. Everything went on well until the evening of the 12th of March, when the patient said that he thought he must have caught cold, as he had pain and soreness about the jaws, with difficulty of mastication. He had also a peculiar tendency to sigh. Shortly afterwards he complained of pain in the left mammary region, and the abdominal muscles, when examined, were found somewhat tense. There was at this time no rigidity of the forehead, eyelids, or mouth. The pulse was soft, regular, and natural at 68, the respiration normal, and the bowels had been acting regularly. He was ordered, however, a bolus of five grains of calomel with one drachm of compound powder of jalap.

"On the following day (13th), the facial muscles exhibited the characteristic contractions of tetanus. The trismus was now determined, and the cervical muscles, especially upon the right side (that of the accident), engaged. The right rectus abdominis was more tense than the left. The bowels had been freely acted on by the aperient, and the discharges were not dark.

"He was now ordered to take one drachm of chloroform agitated with an ounce and a half of linseed tea every fourth hour, and a bag of ice directed to be applied to the cervical spine. The wound was looking healthy, and beginning to cicatrize at the edges.

"Upon the 14th there was an advance in the symptoms which seemed to be kept partially at bay only by the chloroform. The muscles of the neck and abdomen had become exceedingly tense, and there was pain through the attachments of the diaphragm. The muscles of the extremities, too, were now attacked by clonic spasms. The pulse had increased. Chloroform was continued.

"Upon the 15th he was worse. The masseter muscles and sterno-mastoids were very rigid, and the respiration was rendered difficult by the viscid mucus which accumulated in the bronchi, and could not be got rid of by expectoration. (He had previously suffered frequently from bronchitis.) He could swallow liquids, but with great difficulty. As the bowels had not acted since the 13th, a purgative enema was ordered, and the chloroform directed to be given more frequently; every third or second hour as required.

"On the 16th the symptoms were unaltered, but the pulse was becoming frequent, rising to 90 during the paroxysms of pain. The chloroform having been administered for three days, and the case not beginning to improve, it was determined to employ nicotine, and the Rev. Professor Haughton having kindly brought some of that prepared under his own direction, the strength of a single drop of which is equivalent to 23.2-10th grains of Virginian Cavendish tobacco, the first dose was administered at eight P. M.: one drop being dissolved in a dessert-spoonful of white wine mixed with an equal quantity of water. The pulse, prior to the nicotine being given, was 72; it speedily rose to 84, and within *forty seconds* of the medicine being swallowed, the whole surface of the body was bedewed with sweat. The welling up of the perspirable fluid through the pores of the skin was remarkable, it being absolutely perceptible; these drops of fluid being so large that they might easily be flicked with the hand from off the forehead. The spasms almost immediately relaxed, the corrugation of the brow and frightened expression of countenance disappearing. This improvement was, however, only transient, and the nicotine was repeated every two



hours up to two A. M., when, in consequence of the unpleasant taste and nauseating effects, the patient refused to take any more. At six A. M. he consented, however, and continued to do so regularly every two hours, the dose being increased to two drops, or nearly a drachm of Cavendish tobacco. The stools brought away by the turpentine injection were for the first time dark, green, and fetid. From the commencement of the attack a most liberal allowance of nourishment, in the shape of essence of beef, jelly, and wine, had been allowed, which was still continued, although swallowed with great difficulty, and got down between the wedges which separated the molar teeth. Fomentations of a strong decoction of tobacco were applied over the abdomen, and with apparently some good effect; a liniment of croton oil was also rubbed over the surface; and the wounded arm enveloped in a soft anodyne linseed poultice, made with a drachm of the extract of belladonna dissolved in a pint of boiling water.

"18th. Seven days had passed over since the first symptoms had exhibited themselves and two since the nicotine had been employed. All matters were now aggravated. The patient had become ungovernable, and would take no medicine by the mouth, and fluid of any kind he could hardly swallow. The spasms were increased in intensity, of opisthotonic character, and recurring at intervals of eight minutes. The breathing was very quick and laboured, being 44 per minute, and the face congested from mucus, which was kept churning up and down in the trachea; the pulse 130 in the minute; the surface of the body wet and cold. As it was impossible to give the medicine by the mouth, a couple of drops of nicotine were added to a glass of wine and water and injected into the rectum and held. The spasms relaxed under its influence, the power of expectorating returned, and the heart's action became regular again. Towards the afternoon delirium set in, and the patient now acquired full voluntary power over the muscles of the arms and legs. He endeavoured to get out of bed, and struck wildly at those around him, and was so violent that it was necessary to put him under the influence of chloroform by inhalation, which was soon accomplished, to the great relief of the patient, who afterwards rested quietly for some time. He was conscious on awaking, and asked for water to be given him to drink. He was, however, so much exhausted that two ounces of whisky, with an equal quantity of warm water, were thrown up the rectum and retained, after which he took some strong beef-tea by the mouth. During the violence of the patient, the fractured radius became bent almost to a right angle with the ulna, and the deformity of the arm was consequently extreme. An attempt was now made to remedy this deformity, but such aggravation of the symptoms was immediately produced that it was necessary to discontinue the effort, and the arm allowed to assume the position the patient chose, a scruple of watery extract of opium dissolved in four ounces of water being first applied (by means of lint saturated with this lotion) to the wound. The bowels being now confined, an enema of turpentine, assafoetida, and castor oil was ordered to be administered, which secured the discharge of some dark-green fetid stools.

"19th. The nicotine in two-drop doses was now injected by the rectum regularly every second hour, the patient being supported by wine, beef-tea, and essence of meat, introduced through the opening left between the wedges placed between the molar teeth. Tobacco fomentations were applied to the abdomen of the strength of a drachm to a pint of boiling water.

"20th. Patient complained to-day of great pain in the biceps muscle of the affected arm, and also under the scapula of that side. Suffocative catarrh was also present. A mustard plaster enveloping the whole chest was ordered to be applied, and the whisky enemata repeated, the nicotine being continued in injection every two hours. The discharge from the wound was now purely sanguineous, and all attempt at cicatrization had for some while ceased. The retraction of the anus was now so great as to render the introduction of the enema-tube an act of much difficulty.

"22d. The fifty-sixth drop and the last dose of nicotine administered to-day, the countenance being placid, and no spasm having occurred for some hours. There was great aching pain in the lumbar region and soreness of the muscles generally, especially on the right side of the body. The urine passed to-day contained a highly lateritious deposit, but did not possess the smell of nicotine;

patient very weak. He was now ordered an injection consisting of five grains of quinine, the yolk of an egg, an ounce of whisky, and three ounces of milk to be administered every sixth hour.

"23d. The power to open the mouth to some slight extent had returned. The discharge from the wound showed signs of purulent secretion.

"24th. Patient not so well; pulse varying in force and rapidity from 104 to 140; he had pain in the diaphragm and occasional spasms; the discharges from the bowels brought away by an oil draught given over night were black and offensive. The aperient was repeated by the mouth with a full dose of opium shortly after.

"26th. Better, though very weak.

"28th. Slept well; was free from pain and spasm, and the wound looking florid and healing in. The quinine injection repeated night and morning.

"31st. Considerable soreness of the abdomen and diaphragmatic region being complained of, a large belladonna plaster was directed to be applied over it.

"From this date the recovery was gradual and progressive, and he was discharged from hospital in good general health, and with partial use of the injured arm, on the 10th of May.

"That the man owes his life mainly to the narcotine, I think must be fairly assumed, for under the use of chloroform he was gradually getting worse, and the spasm not coming under control. It is true that for a considerable period after commencing the narcotine treatment the disease progressed in intensity; but still a decided impression and relaxation of spasm followed upon each separate employment of the remedy. To chloroform, however, I was greatly indebted for the power which it gave me in controlling the violence of the delirium, and obtaining for the patient, and his attendants, rest."

35. *New Methods of Discovering the Presence of a Ball or other Metallic Body within a Wound—Nélaton's Porcelain Probe—Favre's Galvanic Probe.*—The difficulties which have attended the diagnosis of General Garibaldi's wound, and the contradictions of surgical opinion, have had the good effect of stimulating ingenuity for the devising of new and more certain methods of physical exploration. It will be recollected that the positive opinion of the presence of the ball in Garibaldi's wound given by M. NÉLATON was based upon the dull character of the sound elicited when the probe struck against the hard substance at the bottom, which was very different in his experience from the clear sound elicited from a piece of necrosed bone under similar circumstances, and also upon the sensation imparted to the hand, which bore no resemblance to that imparted by the rough surface of a carious bone. On his return to Paris, he devised, in conjunction with M. Em. Rousseau, a contrivance by which a portion of the ball might actually be brought away, so as to convince those who differed from him in opinion. This instrument consisted of a probe, furnished at the extremity with a little sphere of unglazed porcelain or biscuit-ware, about the size of a small pea. On bringing this sphere in contact with a leaden ball, and exercising a little rotatory friction, it acquires a stain of the metal, which subsequent contact of the soft parts and morbid secretions fails to remove. There is this additional advantage, that the portion of metal thus removed may be dissolved off, and made the subject of chemical tests. It was by the use of this little instrument that Dr. Zanetti convinced himself of the presence of the ball with sufficient certainty to lead to a determination to extract it. The credit of another contrivance, more complicated but not less ingenious, is due to the fertile brain of M. FAVRE, Professor of Chemistry to the Faculty of Sciences of Marseilles. The principle involved is the different conducting power for electricity between a metallic substance, on the one hand, and the fluids and tissues of the body, on the other. Thus it happens, that if the conducting wire of a feeble galvanic circuit connected with a galvanometer be broken, and a bullet or other metallic body be interposed, on the completion of the circuit the needle will be strongly deflected. This would not be the case on interposing the ordinary tissues of the body. With the assistance of M. Favre. Dr. Fontan, a military surgeon at Marseilles, has made experiments to test the efficiency of the plan proposed by the former. The apparatus used was as follows: 1. A Smee's bat-



tery of a single pair of plates, so feeble as to be unable to produce any sensible amount of electrolysis with the animal tissues. 2. A galvanometer. 3. A probe, formed in the following manner: it consisted of two parts, one of which is received into the other, which forms thus an outer casing. The internal portion, or galvanic portion, is a straight metallic probe, through the length of which pass, packed in silk, two metallic wires, each terminating in a steel needle, and isolated and firmly fixed beyond the extremity of the probe by means of a little cone of ivory. These wires are intended to conduct the galvanic current, the galvanometer being placed in the course of the intended circuit. For this inner probe, there is provided an external metallic casing, so constructed as to permit the galvanic probe to be slid within it, and perforated at its extremity with two holes, through which the needle-points of the conducting wires can be protruded. There are various little arrangements of grooves, slits, and a screw to insure accuracy of adaptation between the galvanic probe and its case. In using the instrument, the internal probe is retracted and fixed by the little screw, and the instrument is then employed in the ordinary way as a probe. On the solid substance being arrived at, the screw is loosened, the needle-points protruded, and brought into contact with it, by sliding down the internal probe. If the substance be metallic the circuit is established, and the galvanometer deflected. The first experiments were made with wires unprovided with needle-points, the addition of which were found essential to success, inasmuch as they readily penetrated any soft tissues or adventitious substances, pieces of clothing, leather, etc., which might chance to be interposed, and also overcame the difficulty likely to result from oxidation of the surface of the metallic substance, etc. The use of a little friction with the point of the sound, or a gentle percussion upon it, never failed to establish the galvanic current. M. Fontan suggests that, by modification of this probe, the principle involved might be applied to other purposes of diagnosis, as where the presence of metallic bodies in the canals or mucous cavities of the body was to be detected.—*Med. Times and Gaz.*, Dec. 13, 1862.

36. *Wire Compress: a Substitute for the Ligature.*—MR. JOHN DIX read before the Royal Medical and Chirurgical Society (Jan. 13, 1863) an account of the wire compress, a modification of the method of arresting hemorrhage, devised by Dr. Simpson. This "acupressure," he said, had been tested by but few surgeons of note; and in London, especially, it is almost unknown and ignored. Although, probably, a real improvement on the ligature, it undoubtedly labours under certain inherent disadvantages, most, or all, of which (it is believed) are obviated by the use of a fine wire of iron or of silver, instead of the steel needles of Dr. Simpson. This idea was first promulgated in a paper on "Acupressure," published in the *Medical Times and Gazette* of June 2, 1860; and first put to proof in a case of amputation of the finger, September, 1860. In this operation two arteries were secured by wire, which was removed on the third day. The case did well: there was no bleeding, and very slight suppuration. In the next case—Chopart's amputation, performed April 26, 1861—five wires were applied on as many arteries: four of these were removed in forty-eight hours, and the other on the fourth day. It was found that the wire was easily applied, as easily withdrawn, and entirely effectual for the purpose it was intended to serve, namely, the arrest of the bleeding from the cut vessels. This patient, being the subject of constitutional syphilis, did badly. There was sloughing of the entire surface of the wound, and the flap was totally destroyed, notwithstanding which there was no hemorrhage; but she died, on the thirteenth day after the operation, of pyæmia. Case 3 (September 21, 1861). In an amputation of the thigh, done after Mr. Luke's method, there were seven bleeding arteries. Upon five of these the wire was used, and, with the femoral artery, the femoral vein was intentionally included; two very small branches were treated by torsion. This case did well. Seventy-two hours after the operation, four of the *presse artère* wires were withdrawn with perfect ease and without bleeding. The one on the femoral remained five days, when it, too, was removed without any difficulty and without a trace of blood. There was but little suppuration, and an excellent stump was the ultimate result. These

cases prove that this mode of securing arteries is practicable, efficient, safe, and manageable. It is also believed to possess a certain positive superiority over the ligature, as the following comparison shows: A ligature in a wound impedes union and induces suppuration. Cure, by primary adhesion, of a large wound, as, for instance, an amputation, is an event of extreme rarity, and this because of the ligatures. A thread of silk is, in fact, a miniature seton, and the whole number required in an operation make up one of considerable size, and can scarcely fail to lead to the formation of pus. Again, the ligature of necessity excites ulceration of the artery upon which it is tied; it cannot in any other way be got rid of. This is another unhealthy process, antagonistic of repair. In applying a ligature, the end of the artery is drawn out from its sheath, by which its natural connections are disturbed, and its vasa vasorum broken up; its coats also are lacerated and bruised. The ligature remains for an indefinite time, long after it is useful or necessary, and it is not unfrequently pulled at by the dresser before it has become detached. Its knot, often deeply buried between the flaps, cannot be withdrawn without tearing through adhesions, or damaging the granulations. All these are serious obstacles to the healing process both in the stump and in the artery itself, and must protract the period of cure. Moreover, the following is an interesting and noteworthy formula: Pyæmia is the offspring of purulent secretion, of which the ligature is an efficient and probable cause. Bleeding arises solely from ulceration of an artery, of which again the *primum mobile* is the ligature. From one and all of these objections to the ligature the "wire compress" is almost or altogether free. Thus, in accordance with a well-known pathological law, it being a metallic substance, is freely tolerated by the living body, and has little or no tendency to excite suppuration or irritation. Neither does it cause ulceration of the artery. This is positively affirmed from actual observation of its effect as witnessed in the sloughing stump before alluded to. It is applied without interference with the natural relations and vital connections of the vessel. It is removed at any time, according to the will and judgment of the surgeon, without disturbance to the reparative action going on in the artery and in the rest of the wound, without futile premature attempts, and almost without pain to the patient. It is not liable to lose its hold, or to become detached too soon, as not unfrequently happens to a ligature applied upon a brittle or sloughing artery. Twigs of nerve accidentally included in the embrace of the wire are not injured and excited as by the tight strangulation of the ligature, and, if thought advisable, the veins are easily and safely occluded, along with the arteries. Although this has been spoken of merely as a modification of acupressure, yet it is believed to be a decided and important improvement on "Simpson's skewers," as the needles have been irreverently called, and which are fairly open to the following objections: When several of them are required, the stump resents, as it were, being thus pierced through and through in various directions. From the injury thus inflicted, and from the obstruction to the capillary circulation caused by the pressure of the unyielding steel, arise much tension, œdematous swelling, and great pain; the pain, especially, has been found a very serious evil. Again, their projecting ends, and the puckering they cause in the substance of the flaps, interfere very much with that accurate adjustment of the cut surfaces and edges which so greatly aids the chances of union by adhesion. The wire is free from all these shortcomings. It is thus applied: Take a piece of surgical wire six or eight inches long, and thread each end thereof upon a straight needle. Seize the bleeding mouth of the artery with forceps, and pass one of the aforesaid needles close on each end of the artery just mentioned, about a line above the point of the forceps, directly down through the substance of the flaps, so that they emerge at the cuticular surface, about half an inch distant from each other. Draw them both through together till the curve of the wire compresses the artery on the face of the flap. Now get rid of the needles by clipping through the wire close above their eyes, and also detach the artery forceps. Place a piece of cork, cut for the occasion, upon the skin, between the points of exit of the wire, and over this twist the wire tighter and tighter until the bleeding is arrested. Lastly, cut off the superfluous wire. All which is done quicker than described. Two or more arteries lying



near together may be embraced by one wire, and, as has been said, the veins may be included or excluded at will. The wire should be either of silver, or, what is much cheaper and equally manageable, of the finest and softest passive iron. The generality of wire as used for sutures is too hard and stiff. The needles are about three inches in length, straight, and three-edged, with an eye adapted for carrying wire. Special care is necessary in threading the wire that it is kept perfectly free from all twisting. The forceps are used, not to draw out the artery as when a ligature has to be applied (this, indeed, is to be particularly avoided), but merely as a guide to mark the exact position and course of the vessel. The cork is necessary to protect the skin from the pressure of the wire. The withdrawal of the wire, which at first sight appears an insuperable difficulty, is perfectly simple and easy. It is thus effected: Clip the wire close to the edge of the piece of cork, and straighten out the curve it has formed, at its exit from the skin. Remove the cork, and apply instead the tip of one finger, with which press firmly upon the flap, making traction gently and gradually upon the other end of the wire. If this were roughly and hastily done, it might break up the adhesion which it is presumed has taken place between the surfaces of the flaps, and it is quite possible that a flexure in the wire might lacerate the artery in passing over it; but it is certain that none of these evils need happen with ordinary care and tact. As to the period of withdrawal, further observations are desirable; but it has been clearly shown in numerous cases of acupressure, that for small vessels a few hours of compression is sufficient, and for the largest arteries a much less time than might be supposed. However, as a general rule, it is not desirable to disturb a wound in any way for from twenty-four to forty-eight hours; at the end of which time all wires commanding the secondary branches may be safely removed, and probably also from the large arteries; but, as a matter of prudence, it is well to keep a check upon such a one as the femoral for three or four days at least. The descriptions hitherto given apply particularly to amputations; but the wire is equally applicable to many other operations. In a postscript to this paper was related a case of excision of the testicle, in which it was used most satisfactorily upon the vessels of the cord. Two wires were required, and they were removed on the fourth day. Also a case of excision of the breast, in which three wires were applied, and removed in twenty-four hours. The wound, which was six inches long, healed kindly and rapidly, almost without suppuration. Suppose the femoral artery needs to be secured for popliteal aneurism. The wire would be passed under the artery by means of a tubular aneurism-needle made for the purpose, brought out through the integument at a convenient situation, and then twisted upon a cork in the usual way. This same artery, cut in amputation, is securely closed in three or four days by the action of metallic pressure; consequently, in three or four days the wire might be removed. Meanwhile, it has not caused suppuration, or impeded the union of the wound, which ought, therefore, by this time, to be completely healed; and more important still, the artery is not cut through, as by the ligature, but its coats remain intact, and bleeding is impossible. It will probably be found that the pedicle in ovariectomy may be conveniently dealt with by this method, the arteries being secured individually, and the entire stump also fixed to the abdominal wall by another wire. This idea has been already promulgated by Mr. Spencer Wells. The paper was illustrated by models.

Mr. FERGUSON said that the author's paper ought not to pass without remark, as the subject was novel to the Society, though not new to the surgical department of the profession. The paper (he said) was very interesting and very clever, and yet the materials of it were not sufficient to prove the author's point, as five cases only were reported. These, if the subject had been quite new, might have been brought forward. From the cases adduced, he had not learned that there was, in the smallest degree, any advantage over the ligature, which, as a practical surgeon, he was not disposed to set aside. It had been brought forward by a gentleman of great talents, but he (Mr. Ferguson) had not seen, or heard, nor found anything to induce him to imagine this process superior to the ligature. The cases related were very few, whilst ten times that number of the employment of other means might be brought forward. As

regards the amputation of the finger, every one knew that such cases would 'do perfectly well with the ligature. In the case of partial amputation of the foot, he did not suppose that the sloughing was due to the wire; but the fact, that there was no hemorrhage, did not prove that the wire was better than the ordinary method of securing bleeding vessels. As to the plan adopted with regard to the thigh, that was not new. Professor Handyside had tried this method. The history of the case did not vary from the ordinary run of such amputations. He had tried this plan repeatedly, but should require much greater proof of its value than he had yet heard before he should attempt to secure large arteries, as the femoral or the brachial, on this plan. He noticed that in this paper, as also in many others on the same subject, there was a constant attempt to decry the ligature, one of the grandest things in surgery. Great pains had been taken to test the value of the ligature, and he thought that the question had been set at rest. One point urged against it was, that it gave rise to suppuration, and thus favoured pyæmia. Of this he was doubtful, as he had often observed that patients, after operation, had feverish symptoms which gave rise to great anxiety, but which passed off as soon as suppuration set in. In fact, he always calculated on suppuration as a relief to the patient. He thought that the ligatures acted as vents for the discharge of pus; and, as regards their preventing healing by first intention, he would say that the advantages of this kind of union were overrated. Suppose the stump did heal by first intention, it could not be used for weeks—for months, as it was, in a great measure, new material, which would not bear pressure. In fact, the ligatures were of advantage in this way, that they prevented the patient using his limb too soon.

Mr. Dix said that he rose with much diffidence, and especially so because his reply must be chiefly directed to the remarks of Mr. Fergusson. "Of course (he said) I feel myself quite unable to cope in surgical discussion with so great a surgical authority; nevertheless, it is somewhat encouraging to find that such an opponent, though uncompromising and inclined to be severe, finds so few real and substantial objections to the subject of my paper. His lengthened argument amounts simply to this, that he is content with the ligature. In support of this position, he tells us that he thinks it a matter of little moment, whether a wound heals by primary union or by suppuration. In fact, of the two, he seems to prefer the latter. Sir, I have come a considerable distance to attend this meeting, and I certainly shall not return without having gained a new idea. This doctrine is altogether novel to me. It is utterly subversive of all I was taught as a student, and is entirely opposed to my own somewhat extensive observation and experience. I think it will find but few supporters in this room, or amongst the profession at large. We have been told that, as regards the time at which a stump becomes useful, little is gained by primary union, and, in the same breath, it is somewhat inconsistently stated that suppuration is inevitable—that an amputation cannot be healed without it. This, sir, is a fallacy. Primary union is rare, no doubt, but not impossible. I have seen it myself, and others have here and there met with an isolated case. About five years ago I amputated the leg just below the knee. In this case, although ligatures were used, there was never a trace of pus; in about six days this stump was entirely and soundly healed. I must say that I thought this a very good thing, and, with all deference to the great authority in opposition, I must still retain my humble opinion, that it is far better than a suppurating stump. I am fully persuaded that the chief reason why this good result does not oftener occur is, that those surgeons who doubt its possibility do not adopt the best means to favour its occurrence. He who hopes most and attempts most will attain most, and I have given reasons for believing that there is no surer step in this direction than the disuse of the ligature. Pyæmia, we have also been told, is not necessarily connected with the presence of pus. This may be so. It may be that there is such a disease as idiopathic pyæmia, but it is a doubtful point and difficult of proof. A far more certain thing it is that pyæmia can mostly be traced to a pyogenic source, and it is well known by fatal experience that it occurs most frequently in conjunction with an unhealthy suppurating stump. Hence I have argued in favour of endeavouring to prevent or to lessen



the duration of suppuration. My cases, I grant, are few, because my opportunities are not frequent, but I may claim for them that they have been carefully and anxiously worked out under considerable difficulties and with a weighty responsibility; and I am perfectly convinced that they afford good ground for believing that this little device is likely to be of real practical utility, or I should not have appeared here to-night. But I plead not guilty to the charge of having exaggerated the evils of the ligature, or of having made too much of my own cases. I have expressly and emphatically stated that I have as yet obtained no better results than might have been obtained by the use of ligatures, though I hope ere long to do so. That the ligature is an old friend, well-tried and trustworthy—has been successfully used for years, and does well enough—that somewhat similar attempts to find a substitute for it have failed—belong to that kind of reasoning by which all abuses are defended, and all attempts at improvement are ignored and abolished; they are not of much weight on the present or any other occasion. Mr. Barwell also seems to have a friendly leaning towards the ligature; but his dread of sloughing, from the strangulation produced by the wire is, I can assure him, purely imaginary. If he will try the experiment, he will probably be surprised to find how little pressure is needed to stop the bleeding from even a large artery. The needles of Dr. Simpson do produce injurious and inconvenient compression, but the wire compress does not, and it is one of the advantages I have claimed for it over the needles. I have fully shown that it is safe, and effectual, and manageable; and I have no doubt, from the attention which has been given to my humble efforts to-night, and from the ventilation which the subject has here received, that the wire compress will soon be put to the proof by others who have better and more frequent opportunities than I have; it may be, perchance, to the advancement of the science of surgery, and to the benefit of suffering humanity.”

—*Med. Times and Gaz.*, Jan. 24, 1863.

37. *A Symptom of Fracture of the Base of the Skull.*—In a communication made to the Surgical Society of Paris, M. DOLBEAU has called attention to the presence of ecchymosis of the pharynx at its upper part as a sign of fracture of the base of the skull. In a case admitted into the Bicêtre, where death took place twelve days after the receipt of the injury, the patient complained, when sensible, of pain in swallowing. On examination after death, the base of the skull was found fractured; and there was infiltration of blood behind the pharynx, from the occipital bone to the second cervical vertebra; the mucous membrane of the pharynx was also evidently ecchymosed. In two other cases in which the symptoms pointed to injury of the base of the skull—contusion in one, and fracture in the other—and in which recovery took place, pain in deglutition was complained of; and, on examination, in each case there was found to be ecchymosis of the posterior wall of the pharynx. The portion of the pharynx in which the ecchymosis occurs is rather difficult to be seen; it is limited by the bone of the skull above and the velum palati below, by the vertebral column behind, and the posterior orifice of the nares in front.—*British Med. Journal*, June 7, 1863, from *Presse Méd. Belge*, 27 Avril, 1862.

38. *Recovery after Transfixion of the Thorax by an Iron Bar.*—Dr. C. W. HOYLAND, Surgeon-Superintendent of the British Seamen's Hospital, Constantinople, relates the following remarkable case. Macknesky Leon, aged 25, a Pole, was employed in the hold of the Liverpool steamship *Sicilian*, discharging bar iron; and while he was in a stooping position preparing to sling a bundle for hoisting on deck, a bar from the one preceding slipped from the slings, and, descending end on, pinned him to the flooring of the hold, penetrating the wood to the extent of three inches, and requiring the united efforts of three men to extract it. The bar was of angular iron, an inch and a half square, and about fifteen feet long. The wounds were dressed by the captain, who simply applied pledgets of lint, steeped in compound tincture of benzoin, to the sites of injury anteriorly and posteriorly, and a roller round the chest. It was reported that considerable hemorrhage took place at the time. On reception at the hospital about an hour after the accident, Mr. Hoyland found the patient much

depressed; he had a feeble, quick pulse, and some dyspnœa; no cough. The dressings were not disturbed. Depression gradually subsided, and the reaction was moderate, no inflammatory or other unpleasant symptoms following. The patient was kept in a large ward, with the windows open night and day; and cold applications of a strong infusion of matico, in which a little chlorate of potash was dissolved, were employed. He did not micturate for the first twenty-four hours, and the bladder appeared quite empty. The bowels did not act until the fourth day, although castor oil and injections were administered freely. On the fourth day the bowels were evacuated freely once, and the kidneys acted regularly. On the fifth day, in the presence of Mr. J. Murphy, surgeon of Her Majesty's ship *Gannet*, Mr. Hoyland removed the dressings, found the wounds discharging freely and granulating kindly. The same treatment was continued—viz., pledgets saturated as above. The iron had entered posteriorly between the ninth and tenth rib, on the left side, a little before the angle, traversing the thorax in an upward and slightly outward direction, and coming out anteriorly between the fifth and sixth ribs about an inch below, and slightly outwards of the nipple. There was only slight constitutional disturbance for the first few days, with slight cough, but no dyspnœa. This yielded to the antiphlogistic regimen and saline draughts, the bowels throughout being gently relaxed. He was discharged quite well on the 8th of September.—*British Med. Journal*, Dec. 13, 1862.

39. *Osteo-aneurism*.—Dr. E. D. MAPOTHER reported to the Surgical Society of Ireland (January 23, 1863) the following example of this infrequent disease: The subject of it was a gentleman aged 28, who had a tumour upon his left leg, which he attributed to an injury about five years ago, when he accidentally struck the limb against a chair. He had tried blisters, ointments, and other means for its removal, without success. It had progressed at a much more rapid rate for the month before I saw him. It was situated on the inner surface of the left tibia, about its centre, and appeared like a node, save that it was larger and more prominent, projecting externally to the size of a large walnut, and, as we had afterwards reason to believe, dipping into the bone for an equal depth. The skin was tightly stretched over it, but was not at all discoloured. It had a slight degree of elasticity, but its most remarkable features were a well-marked thrill or *frémissement*, and a distinct expansive pulsation, which latter was demonstrated by placing a bit of paper on the tumour and looking at it *en profile*. The pulsating mass rose up suddenly from the bone, which was plane and healthy around it. A slight bruit was audible with the stethoscope. Pressure on the femoral or popliteal arteries did not remove these symptoms. It was occasionally painful and tender. His general health was admirable, and there was no sign of strumous, syphilitic, or cancerous cachexia. As I stated that some operative procedure was called for, the family wished for the advice of Dr. Hutton, to whose mature judgment the successful issue of the case is mainly due. We determined first to remove the skin by *potassa fusa*, and this was done readily and rapidly by first raising the cuticle with a blister. The thrill, pulsation, and bruit were now found more evident, and the bone was seen to form a thin cribriform shell, the periosteum still covering the small spots where it had been removed. The tumour did not give the sensation similar to that experienced in squeezing parchment or egg-shell, which Chelius considers very characteristic. Remembering the frequent occurrence of phlebitis when the veins of bone are divided, we were disinclined to remove the tumour by a gouge or other cutting instrument. I may here say incidentally that I have always regarded the ready absorption of pus, and occurrence of phlebitis consequent upon injury of bone, as due to the peculiar anatomical arrangement of its veins. As described many years ago by Dr. Benson in the article "Bone," in *Todd's Cyclopædia*, these veins pass through osseous canals, to the sides of which they closely adhere, so that they cannot close on their contents. Nor can they readily become occluded by lymph, which we know is Nature's expedient for preventing the dispersion of emboli or pus-clots. Their ready power of absorption was demonstrated by Cruveilhier's well-known experiment: he injected mer-



cury into the medullary cavity of the tibia of a dog, and found it almost immediately after deposited in the liver. The fact that pressure on the femoral artery did not stop the pulsation, convinced us of the inutility of pressure in this case, although so successful in aneurism affecting the larger trunks. Still less were we willing that the patient should lose his limb, although amputation has been the result of nearly every reported case.

We resolved to try the effect of actual cautery, and having chloroformed the patient, we pressed an iron button of the diameter of a shilling, heated to a white heat, deep into the tumour; a good deal of hemorrhage followed, but was repressed by muriated tincture of iron. In seven days the slough separated in small gritty pieces, and there was disclosed a mass of hard pulsating substance of the shape of large granulations, but of a pale colour. Seeing that it was necessary to reapply the cautery, we did it this time with a sharp conical iron, which was thrust five times into the tumour, and thus it burnt its way for an inch and a half from the surface of the tibia. In ten days a thick and somewhat conical slough came away, leaving a cavity filled with small healthy granulations at its sides, but with a small spot of rough bone at the bottom. This gradually became covered in, and the ulcer assumed the healthiest character. The patient has not suffered in any perceptible degree from the confinement to which he was necessarily subjected. I have warned him against any sudden or violent exertion of a nature which would tend to injure the arterial system, for there is no doubt that in some individuals a proneness to aneurismal disease exists, almost in the manner of a diathesis.

I shall conclude this brief sketch with a few reflections on the pathology and treatment of this interesting affection. In the first place, I trust that my case proves that osteo-aneurism can exist without any malignant character—a fact which has been all but denied by Mr. Holmes in his recently published *System of Surgery*. The skin and areolar tissue are very frequently the seat of tumours composed of dilated arteries and capillaries, and there seems no valid reason why so vascular a structure as bone should not occasionally suffer a similar condition. These aneurisms by anastomosis in the skin are certainly much more frequently congenital, but there are many authentic accounts of their being developed at various ages after birth. The tumour I have described closely resembled aneurism by anastomosis in the thrill and bruit which it possessed, and in the abundance of the hemorrhage which occurred from it when partly destroyed by the heated iron. In many reported cases where the part was removed by amputation, the tumour, when injected and carefully examined, was found to consist of dilated, tortuous, and freely communicating vessels, identical with those which form the bulk of the cutaneous affection, and forming a mass extremely like the uterine surface of the placenta. I had no opportunity of making such observations, but the features of the disease convinced me of its close analogy with aneurism by anastomosis. As regards the relative frequency of the disease in various bones and in the sexes, Crisp informs us that out of 25 cases, 13 were situated in the tibia, and 19 occurred in men. The same author affords statistical information which may guide us in forming a prognosis, for out of these 25 cases, 19 were fatal either after operations, or where the case was not at all interfered with. Ligature has proved remarkably unsuccessful, and nearly all surgical writers agree that amputation alone gives the patient a chance of recovery; if, however, no recurrence of the disease takes place in the instance I have detailed, I think it shows that reliance can be placed in the actual cautery to remove the slighter and more circumscribed examples of osteo-aneurism in its earlier stages. It will gratify me extremely to hear the comments of any member on the subject.

Dr. Mapother added that the first operation was performed two months ago, and the second ten days after that. The tumour was now quite removed, and the ulcers were healed completely.—*Dublin Free Press*, Feb. 4, 1863.

[It is to be hoped that Dr. Mapother will watch the future progress of this interesting case, and communicate it to the profession. The cure is too recent to pronounce it permanent, or to lead to the conviction of the innocent nature of the disease.]

40. *Amputation at the Hip-Joint for Malignant Disease of the Thigh.*—Mr. JAMES SPENCE records (*Edinburgh Medical Journal*, January, 1863) a case of malignant disease occupying the middle and lower part of the right thigh of a girl 15 years of age, in which he amputated at the hip-joint. The operation was successful so far as for the present at least to snatch the patient from the brink of the grave and restore her to health, but it is yet premature to say that the disease may not hereafter return in some other organ.

Mr. S. makes the following observations on amputation for malignant disease, which are worthy of consideration:—

"The mortality which attends amputation at the hip-joint, and which has even led some to question the justifiableness of the operation, is undoubtedly very great; and hence considerable interest attaches to every successful case, the circumstances under which it was performed, and all the conditions which may have a bearing upon the general question of the operation in similar cases. According to the latest statistics of the operation, given in the recent edition of *Cooper's Surgical Dictionary*, we find that, in a total of 139 cases, there were 91 fatal results, or a mortality of 65.46. Moreover, when we know that in several of the successful cases the operation was performed on limbs which had previously undergone partial amputation, and where consequently the shock and disturbance of the system caused by the sudden removal of the whole lower extremity was wanting, or at least greatly diminished, it seems evident that the risks of this formidable operation are such as must limit its performance to cases of extreme necessity.

"In cases of certain severe injuries the surgeon may be forced to perform it as the only chance of saving, or at least prolonging life, and alleviating suffering, by removing the shattered limb. In cases of disease, the question of operation comes before us under a somewhat different aspect, for the amputation may prove more speedily fatal than the disease would have done if left to its own course. Hence, to warrant its performance, the disease must be of a kind that admits no other remedy, and at a stage when the whole of the appreciable disease can be removed, and with a reasonable hope of prolonging life. In the case which forms the subject of the present remarks we have a good example of the conditions which warrant us in having recourse to amputation at the hip-joint. The girl was suffering from intense pain, her appetite was almost gone, and her strength exhausted by the pain and want of sleep; her pulse was quick and irritable, whilst the tumour was increasing rapidly. The urgency of these symptoms showed the necessity of operative interference, if any attempt was to be made to relieve her sufferings and to prolong life, even for a short time; whilst the absence of glandular enlargement, either in the groin or elsewhere, gave hopes that the lymphatic system was as yet unaffected, and that, with youth on her side, there was a reasonable hope of success attending the operation. On the other hand, if it were delayed, or not performed, a speedy and painful death was certain.

"The disease was limited as far as malignant disease can be said to be limited in the living body, where the circulation of the fluids prevents positive limitation to any special part. But, practically, surgeons are agreed, from experience, that malignant disease, especially its medullary form, when situated in an anatomically limited organ—as the testicle, for example, where it is invested by a dense resisting capsule—admits of more thorough removal than when it occurs amongst muscles or other soft textures, whose structure it speedily involves in the same diseased action, without any definition or limitation. In the present case the disease had evidently commenced in the interior of, and was still apparently confined to, the shaft of the femur. Thus walled in, as it were, by the dense fibrous shell of the bone, or by the strong fibrous periosteum investing the shaft on every side, and closed in at either extremity of the bone by the articular cartilage of incrustation, the disease presented the utmost possible degree of anatomical limitation, and so presented the best possible chance of complete removal. But to profit fully by this limitation of the disease it was evidently necessary to amputate in the contiguity, and not through the continuity of the affected bone—a rule which I consider of paramount importance in such cases. Hence the reason why I considered amputation through the trochanters



inadmissible, although the bone seemed unaffected; for, in many cases where no perceptible alteration in the form of the bone can be detected, the disease will be found to be infiltrated into the cancellated texture even of the neck and head of the bone; and there need be the less hesitation on this point, as I believe that, in cases of malignant tumours of the femur, amputation through the trochanters is attended with quite as much danger to life as amputation at the hip-joint."

There are two in Mr. S.'s case to which he calls attention, and which are of interest. The *first* of these is "the mode adopted to restrain hemorrhage during the operation. This was effected by compressing the abdominal aorta by the tourniquet, or compressor, proposed by Professor Lister, of Glasgow, and which he kindly lent me for the occasion. I had previously ascertained that, from the thin condition of the patient, I could readily arrest the circulation by manual pressure on the lower part of the aorta, but an equal, unyielding mechanical compression is safer, and hence I preferred it; but, as it was a trial, I guarded against all risk from the anterior vessels by intrusting the care of the femoral artery to my colleague, Dr. Watson. The result, however, showed the efficiency of the instrument, as it completely commanded the usually uncontrollable flow of blood from the branches of the internal iliac distributed to the posterior flap; and avoidance of loss of blood in an exhausted patient must have a most important bearing on the success of the case. How far such compression could be trusted to entirely in a strong man, or in the case of a very fat person, with a large abdomen, or whether it might, if incautiously applied, lead to injury to the viscera in certain conditions, further experience can only reveal; but certainly in this, and two cases in which it was used by Professor Syme, it proved perfectly effectual.

"The other point of the operation I would refer to was the necessity which arose for applying a ligature to the femoral vein. The hemorrhage from this vein continued after all pressure had been removed from the groin and abdomen, and as temporary pressure of its orifice and other means failed to arrest it, and as it returned whenever the pressure was removed, I found it absolutely necessary to tie it. I have frequently seen troublesome bleeding from the femoral vein in amputation of the thigh, but in general it stops when compression is made by applying the flap against its surface, when all pressure above is removed, and the stump elevated, but here these means prove ineffectual, or perhaps, I should rather say, the weak condition of the patient rendered it necessary at once to check all loss of blood. I confess that my prejudices against tying veins are very strong, and this step in the operation made me uneasy as to its effects; but as the history of the progress of the case shows, my fears were groundless, not a single bad symptom having followed ligature of the vein."

41. *The Urine in Diseases of the Bones.*—In the course of a series of papers on inflammation of the bones, Dr. LORINSER of Vienna gives the results of some observations made by Professor Kletzensky on the chemistry of the urine and pus in cases of inflammation of bone.

In very acute cases of inflammation of bone the urine presents marked peculiarities. There is not only, as ordinarily occurs in inflammations, a diminution of the chlorides, with a copious or increased excretion of urea, uric acid, extractive matter, and alkaline sulphates and phosphates, but the phosphate of lime is also greatly increased in quantity, and is not unfrequently found in the urinary sediments in the form of bone-earth. The chlorides diminish from their normal proportion (about 10 per 1000) often to as low as 1 per 1000; while the earthy phosphates increase from 3 to 10 parts in 1000, or even higher. In the further progress of acute osteitis, the chlorides again gradually increase; the urea and the urates and sulphates also diminish; but the proportion of the phosphates varies according as the disease is unattended with suppuration or any remarkable amount of osteophytic growth, or with necrosis and the formation of new bone. In cases of the first category—"dry inflammation of bone," as it is sometimes called—the phosphates, and especially the phosphate of lime, remain at a high figure until the inflammation ceases; and the latter often appear excreted in the form of amorphous bone-earth. If necrosis, with suppu-

ration and subsequent formation of new bone set in, there is a diminution in the quantity of the phosphates, and especially the phosphate of lime, which is employed in the process of bone-growth.

The manifestations of the phosphates in the urine correspond perfectly with the chemical characters of the diseased bone.

In the inflamed bone itself (without reference to new osseous growths) there is always a very marked diminution of the bone-earth, which, during the exudation-stage of the inflammation, is rapidly absorbed and carried away by the urine. The proportion of water in the bone is at the same time increased, and the animal matter is diminished. The normal proportion of carbonates to phosphates in the ashes of bone is destroyed, while that of magnesia to lime remains undisturbed. Albumen and chloride of sodium, which are scarcely to be found in healthy bones, are generally greatly increased in quantity; and tyrosin can also for the most part be detected.

As soon as new bone begins to be deposited, the excess of phosphate of lime in the system is used in its formation; and consequently there is a diminution in the excretion of the phosphates, especially the earthy phosphates, by the urine. The bony deposit does not at first show the normal condition of bone; but the "glutin," and especially the bone-earths, are far more abundant than in the inflamed and necrosed bone, and the excess of water is diminished; but the newly formed bone contains decidedly less fat. The following analysis, taken from a patient aged 29, who had necrosis after acute inflammation of the tibia, shows the difference in the composition:—

	Necrosed bone.	Newly formed bone.
Water . . . . .	71.7	32.8
Fat . . . . .	2.4	0.8
"Glutin" . . . . .	12.3	26.4
Bone-earth . . . . .	12.4	40.0
Other organic matters . . . . .	1.2	A trace.
	<hr/> 100.0	<hr/> 100.0

In both instances the proportions differ from those of normal bone; in which the amount of water is ordinarily 10, of "glutin" 30, and bone-earth 60 per cent.

In chronic inflammation of bone, the changes in the urine presented in acute inflammation are not perceived; there does not appear to be a notable diminution of the chlorides, unless a sudden attack of acute inflammation set in. But the phosphates are increased in quantity in the urine as in acute osteitis, especially the earthy phosphates. If at a later stage of the chronic disease an energetic osteophytic development take place, or especially if the weakened osseous tissue be again thickened, the quantity of earthy phosphates in the urine is diminished; but if none of this reparative reaction occur, the quantity of these salts goes on increasing. Hence, in all cases of chronic, especially lingering, inflammation of bones, and even in spinal curvature, knock-knee, &c., the examination of the urine affords most important indications as to the stage of the disease—a point often difficult to be determined. The same observation is applicable to the healing of fractures.

In long standing caries the earthy phosphates appear abundantly in the urine, mostly in company with some albumen, uroerythrin, and carbonate of ammonia (produced by decomposition of urea), and even tyrosin. In the stage of greatest exhaustion, the phosphates, with the urea and uric acid are diminished, and the albumen is then generally accompanied with hæmatin.

In the so-called "phosphorus necrosis" (disease of lucifer-match makers), phosphites and hypophosphites appear in the urine; showing that the disease is certainly not local, but must be connected with important changes in the blood itself.

A rather considerable excretion of phosphates, especially alkaline phosphates, takes place in suppuration. The phosphates, especially at the commencement of the suppuration, appear very abundant in the pus discharged from abscesses that have been opened; and they retain their high figure through the continuance or increase of the destruction of the bone up to the time of death. Even



during extreme exhaustion, when the amount of phosphate in the urine is diminished, that in the pus is increased. The proportion of alkaline to earthy phosphates, which in normal pus is 7 to 1, often varies greatly with the stage and course of the disease, and the state of the patient's general health. In phosphorus necrosis, the alkaline phosphates, in the pus first discharged, are increased more than threefold; the pus also generally contains tyrosin as well as phosphites and hypophosphites.

In chronic, as in acute, inflammation of bones, there is an increase of the water and a diminution of the animal and mineral matters. In cases of long standing caries, with extreme exhaustion, the proportion is sometimes changed; while the mineral matters continue diminished, the animal matter is increased, so that there is an apparent diminution in the proportion of water, which is, nevertheless, still great. Albumen, which is almost absent in healthy bone, appears in abundance in chronic inflammation, especially in caries of long standing. The proportion of carbonates to phosphates, which in normal bone is as 1 to 7.25, varies in chronic inflammation of bone from 1 in 4 to 1 in 12. In phosphorus necrosis there is not so great a deviation from the proper proportions of water, animal matter, and mineral matter, as in other forms of caries and necrosis. This, however, depends on whether the nutrition of the bone has or has not been suddenly interrupted by the phosphorus necrosis. In the former case the composition of the bone will naturally be less altered than in the latter. —*British Medical Journal*, Dec. 6, 1862, from *Wiener Med. Wochenschr.*, Oct. 4, 1862.

42. *Sac of a Spina Bifida successfully removed by Operation.*—Dr. WILSON, of Clay-cross, sent to the Pathological Society of London (Jan. 6, 1863) this specimen. The child from whom the sac was taken was a fine, and, in other respects, well-formed boy, the first child of young parents. The tumour was pyriform, the size and shape of a ten-ounce necked cupping glass. It hung from the upper dorsal region of the spine, was flaccid, and only partly filled with fluid; the integuments over it were very thin, indeed, translucent, and over the most prominent part of the swelling were two small excoriations. At the base of the tumour could be felt a deficiency in the bones beneath, corresponding with the third and fourth dorsal vertebræ. There was no paralysis or other symptom of deficiency of nervous power. From the time of birth Dr. Wilson applied pressure to the base of the tumour, so as to isolate it from the spinal canal as far as possible. To relieve the tension of the integuments which had become extreme, on the twentieth day after birth it was punctured, and eight ounces of fluid were drawn off. During the next twelve days it was tapped four times, each time about two ounces of fluid being drawn off. A steel clamp was applied to the base for five days before removal, and, on the thirty-third day, the sac and integuments were shaved off at the base of the tumour, which was grasped by a pair of circumcision forceps. The cut edges of the spinal membrane were lightly touched with a red-hot needle, sutures were applied to the wound, and pressure to the base of the tumour. Twenty days after the operation the wound had entirely healed. Two months after the operation the chink in the vertebræ was found to be closed by a solid mass which projected somewhat beyond the neighbouring spines, and appeared to be formed of bone. The sac, as Dr. Wilson says, consists of thin integuments covering the dura mater, to which it is unadherent; this is lined internally by a layer of epithelium resting on a basement membrane, coated on its free surface by a more or less organized exudation of lymph. The dura mater is quite an independent coat in this tumour, and is in no way connected with the integuments: the sac contains no nerves. The fluid in this case was situated in the sac of the arachnoid, and not, as is usually the case, in the sub-archanoid space. The tumour (Mr. Smith said) had been examined by Dr. Cornelius Black, of Chesterfield, by Mr. Savory, and by himself, and all coincided with Dr. Wilson in his account of its structure and connections with the spinal membranes.

Mr. Hutchinson remarked that this case had been very correctly described as the first successful one of its kind in English practice. It was not, however, by very far the first in which a similar plan had been tried. All the others had

ended fatally, and he (Mr. Hutchinson) found in this fact a very strong argument against the measure. We must not be misled, by the successful result of a single case, into adopting a practice which, in the long run, would destroy many lives. He gave a strong opinion against all operative interference with spina bifida, stating that he had witnessed many operations of very various kinds for the cure of this deformity, but every one of them had been followed by the same result. In several of these there was every probability that, had the operation not been performed, the patient might have grown up. He had seen several adult patients the subjects of spina bifida which had been wisely let alone in infancy.—*Med. Times and Gaz.*, Jan. 31, 1863.

43. *Ovariectomy*.—Mr. YEO read before the Junior Medical Society a paper on this operation. He commenced by observing that the subject was so mature, and surrounded by so many well-authenticated facts, that it might fairly be discussed by this Society. In doing so it was desirable to be influenced not so much by the weight of authority, but rather by a calm review of the facts of the case, and the reasonable inferences to be deduced therefrom. The history of the operation was then traced, from its origin in America, in 1809, and its inauspicious introduction into Great Britain by Mr. LIZARS in 1823, to its re-introduction by Dr. CLAY in 1842, and its subsequent steady progress. He then enumerated the various other means that had been suggested for dealing with ovarian tumours, and alluded to their generally unsatisfactory results; and after sketching the usual course of a case of ovarian disease, if left to itself, or merely submitted to palliative treatment, he passed on to the consideration of the operation of ovariectomy itself, pointed out the cases in which it appeared justifiable, and thought it should be restricted to those cases where the disease manifested a progressively fatal tendency, or where the patient's life was rendered so miserable that an operation was eagerly sought after. While alluding to the modes of performing the operation and the proper after-treatment, the author mentioned the particulars of two recent cases, one in which Mr. FERGUSON, and the other in which Mr. BRYANT, had operated. He then stated the common objections to the operation, and thought they would be removed by the results of an extended experience, a careful selection of cases, and a careful observation in operation of all the details that the most experienced in these cases had suggested and found necessary; observing, in conclusion, that after, and in spite of, much opposition, ovariectomy might now be regarded as about to take its place amongst the greatest achievements of the progressive surgery of the nineteenth century.—*Lancet*, Dec. 27, 1862.

44. *Imperforate Anus; Successful Treatment by Perineal Incision*.—One of the operations for the remedy of artificial anus in children consists in making an incision in the perineum, detaching the rectum, and bringing it down and fixing it to the external wound, so as to make a new anus. An operation of this kind is reported by Dr. FRIEDBERG, of Berlin, as having been performed by him with success. The patient was a male child. The medical man in attendance had incised the perineum and opened the rectum, with relief for a time; but defecation became gradually more difficult, and ceased when the child was about nine weeks old. Dr. Friedberg was now called, and operated in the manner above described. The stools were passed daily for three months. At this time, constipation set in. The passage was found to be perfectly free; and the constipation was relieved by drawing away an accumulation of scybala about four inches above the anus. The newly formed anus had at this time all the appearance of the natural opening, and contracted on the finger.—*Ibid.*, from *Arch. für Path. Anat.*, and *L'Union Méd.*, 1 Avril, 1862.

45. *Vaginal Lithotomy*.—Dr. AVELING, of Sheffield, read a paper on this operation before the Obstetrical Society of London (Jan. 7, 1863). The author commenced by reciting the particulars of thirty-five cases in which this operation had been performed—twelve British, and twenty-two foreign. The author also gave another case, in which he divided the vesico-vaginal septum, and extracted a small rough stone. The wound was brought together with silver wire



sutures. Gilt beads were passed over the ends of these, and run down to the lips of the wound. These were kept in position by a perforated shot, also passed over the ends of the sutures, and tightened upon them by a pair of forceps. He proposes in future to use a coil, made by winding a piece of the suture wire round a pin, instead of the beads. The wound healed in a week, and the patient returned to her home in a fortnight.

Mr. Spencer Wells congratulated Dr. Aveling upon the successful result of his interesting case, and heartily concurred in the tribute he had paid to the services of Dr. Marion Sims. But he (Mr. Wells) had begun to doubt whether the success which had followed the operation for the cure of vesico-vaginal fistula of late years was so much due to the use of wire sutures as to the improvements which Dr. Sims had originated in the mode of bringing the fistula into view, accurately paring the edges, and bringing them into perfect apposition. Provided the edges of a fistula were thoroughly pared, and kept in close apposition, it was probably of little importance how this was done. A year ago he (Mr. Wells) was as strongly in favour of metallic sutures as anybody; but latterly a wider experience had taught him that it is only after five or six days that wires show any advantage over silk, and before that time the sutures ought to be removed. Then silk offers the great advantages over wire of being more easily applied, of not requiring so large a needle to pass it, of the ends being much less irritating, and of being more easily removed. After many comparative trials on different parts of the same wound with wires of silver, iron, lead, platinum, and aluminium, and with fine catgut, horsehair, telegraph wire, India-rubber thread, and the fine strong silk known as "Chinese twist," he had become convinced that wires offered no advantage over silk, while silk offered many advantages over every other material used for sutures. In a recent case he had closed a vesico-vaginal fistula by five silk sutures, and perfect union resulted, although no catheter was used. The supposed necessity for the use of the catheter after closing vaginal fistulae, was another error which time was correcting. The urine is by no means so irritating a fluid as some believe. The lower orders use it as a lotion to the eyes and to sore legs; and it certainly cannot differ much from the dilute saline solutions constantly prescribed as astringents or stimulants. The use of the catheter is the most troublesome part of the after treatment, and often most distressing to the patient. One of his patients really could not bear it, yet she did perfectly well; and lately he had not used it at all, union taking place quite as well as when it was used, and the patient being much more comfortable. With regard to stone in the bladder during labour being a cause of vesico-vaginal fistula, he had once removed in the Samaritan Hospital a large stone through a fistula before closing it; but it was very questionable whether it could often be necessary to remove a calculus through the vagina when no fistula existed, or to run the risk of making a fistula to remove a stone. Lithotripsy was very easily performed in women; and large fragments of stone passed readily through the short female urethra, so that no form of lithotomy could often be called for. Simple dilatation of the urethra was not likely to answer in any case not suitable for lithotripsy, and its effects are very uncertain: a large stone might be removed and no incontinence follow; but incontinence might follow removal of a very small calculus. The usual aid to dilatation by incising the urethra was still worse. A surgeon of very large experience had told him that he had done it for two adults and seven children, and "they were all dribblers." Where, from some exceptional condition of bladder or stone, lithotripsy was inappropriate, vaginal lithotomy might, therefore, become a valuable operation; but experience was still wanting to show that it was better than, or as good as, the lateral operation so successfully practised by Dr. Buchanan, of Glasgow. The subject was a comparatively new one, and Dr. Aveling deserved the thanks of the profession for the light he had thrown upon it.—*Med. Times and Gaz.*, Feb. 7, 1863.

## MIDWIFERY.

46. *Tartrate of Antimony as an Oxytolic.*—Dr. PARKER communicated to the Obstetrical Society of Edinburgh, the following notes: Tartarized antimony has long been, as you are aware, in use in obstetric practice. Lecturers and authors have informed us, and still continue to do so, that the result of its administration is to advance the labour—1st. By overcoming muscular rigidity; 2d. By causing a free flow of mucus, and thus lubricating the vaginal mucous membrane. While not confining its use to primiparæ, they speak of it as more especially serviceable in this class of cases.

With this much theoretic knowledge of its action I, sixteen years since, commenced testing it practically, and it was not long before I observed that, in addition to the actions previously attributed to it, a very important end was effected in a large majority of cases by its administration. I refer to its influence on the uterine contractions; in other words, to this agent as a powerful stimulant to the involuntary muscular action of that organ. While relaxing the circular or sphincter fibres of the os uteri, I observed that it produced more powerful propulsive efforts, by stimulating the longitudinal and other muscular fibres concerned in effecting delivery.

As early as the years 1846 or 1847 I called the attention of some of my medical friends to the facts, and requested them to keep a record of cases in which this auxiliary agent was prescribed.

It is unnecessary that I should occupy the time of the Society by detailing minutely reports from my case-book. A brief summary of what I have observed in reference to this matter in a very large number of instances, and the deductions drawn therefrom will suffice, and equally subserve the end I have in view.

1st. Tartarized antimony relaxes both voluntary and involuntary muscular fibre concerned in resisting and retarding labour; in other words, it overcomes the rigidity of the os uteri and perineal muscles.

2d. By increasing the vaginal mucous flow, and lubricating that surface, it essentially aids the progress of parturition.

3d. *It stimulates to increased contractile action the oblique, longitudinal, and other muscular fibres concerned in expelling the child.* It may be said that this increased contractile action is only apparent, and that the advance of the labour is due to the decreased rigidity and resistance of the os and more external parts, in consequence of the tartarized antimony having produced the results stated in the two preceding propositions. This objection is at once removed and proved to be incorrect by the results following its administration, in cases not primiparous, where there is “inertia uteri” with the os fully dilated, the vagina patent, and the perineum not rigid. In just such labours I have been in the habit of prescribing the tartarized antimony instead of ergot, with the most marked results.

4th. Unlike ergot of rye it does not produce continuous contractions, but, in the majority of cases, enhances the power and force of the regular pains, and admits an interval of ease.

5th. It continues to some extent to exert its contractile influence after the expulsion of the child, and hence reduces the risk of hemorrhage. Of course this result will be modified by the interval that has elapsed between the administration of the antimony and the delivery.

6th. Unlike ergot, it does not interfere with the extraction of the placenta, by producing irregular uterine contractions. The superior and propelling portion of the organ, it is true, is generally more firmly contracted than natural after delivery; but the sphincter (the os) is mobile and yielding, and but little difficulty (no morbid condition of the parts being present) is experienced in this particular; abdominal pressure, and traction in the proper axis will almost invariably effect the end without injury to the cord.

7th. While perhaps more applicable to primiparæ, tartarized antimony may



be administered with like results in subsequent labours, and that at any age or stage of labour, without risk of injury to the uterine texture.

8th. Administered as I shall presently state, its emetic effects are not troublesome; not more so when they do occur than from ergot, when this latter, as it very frequently does, produces vomiting. This effect of the antimony, when present, will promptly yield to cold oatmeal, coffee, a mustard cataplasm over the stomach, or a dose or two of the trisnitrate of bismuth.

9th. I have never known depression of the vital powers, or more than temporary inconvenience, to follow its use when administered in the mode herein-after mentioned; although I can readily conceive that there are cases in which it would not be admissible. In the selection of appropriate cases, and discriminating in this matter, medical men must have recourse to, and be guided by, their experience and general principles.

10th. Tartarized antimony, by facilitating and shortening the process of parturition, as above mentioned, without risk to the uterine apparatus or general system, will, we may confidently expect, by conserving the vital powers and reducing the nervous shock, show, on more extensive trial, favourable statistical results in the mortality attending obstetric practice.

The foregoing observations and conclusions have not been arrived at hurriedly, and they are not deductions drawn from a limited number of cases, or, as you are aware, from a limited field of observation. While they will be found correct in a large majority of cases, I am free to admit that tartar emetic will not in all cases produce the same results. And, indeed, of what therapeutic agent can we write in other language? Once only (six or seven years since) I have met with a single recorded remark that would lead me to infer that the *contractile influence* to which I have referred has been noticed by others. I cannot now lay my hand on the periodical which contains it, but I recollect the writer states that, after injecting two grains (I think) of tartarized antimony into the rectum in a case of tedious labour, for the purpose of overcoming muscular rigidity, *the pains very shortly became stronger and more effectual, or words to that effect.*

The rationale of its action is undoubtedly to be referred to the influence tartarized antimony exerts on the sympathetic system of nerves. The uterus, like the stomach and intestinal canal, is composed of involuntary or unstriated muscular fibre, and is, like the other abdominal organs, largely dependent for nervous supply on the sympathetic system. Now, we all know as the action of antimony on these hollow abdominal muscles or canals: that, when administered in sufficient quantity, forcible contractions of the circular and longitudinal fibres composing them, and relaxation of the sphincters, take place; just what I have remarked and recorded as occurring in the uterus. Similarity of texture and nervous supply would then analogically point to that which experience and observation have taught me is in reality the case in reference to the action of this agent in the uterus in the act of parturition.

Ergot of rye, while acting primarily and with more energy on uterine muscular fibre, exerts at the same time a secondary or inferior influence on the stomach, often producing, as I have before remarked, troublesome vomiting.

Now, the deduction one would naturally draw from the above observations is, that all, or most of what are termed "specific emetics," would, through the agency of the sympathetic system, exert their contractile influence on the uterus, and *vice versa*, as just illustrated in the case of ergot—*i. e.*, therapeutic agents which cause uterine contractions will have a similar action on the stomach and intestinal canal. I have not administered ipecacuanha with the same object in view, but have very little doubt that if tried it will be found to produce like results. Its taste and bulk would, however, other things being equal, give a preference to its more convenient ally tartar emetic; while, on the other hand, its depressing effects would not be so marked in cases where a continuance of the medicine should be considered advisable. In this connection I may remark that it is suggestive, and at the same time corroborative of the views here stated, that nausea and actual vomiting, occurring naturally during labour, very generally advance, and often materially shorten the process, by increasing the contractile power of the uterus. I administer the tartarized an-

timony as follows: From one to two grains are dissolved in a wineglassful of water, and a dessertspoonful given every ten or fifteen minutes *ad nauseam*; and if the pains are not increased sufficiently, and there are no contra-indicating circumstances present, it is continued beyond this point. The rectal mode, to which reference has been made, has its advantages, and, at the same time, its inconveniences; but there are cases in which it should have the preference.

It only remains for me, in conclusion, to ask the members of this Society to give the subject their consideration, to note at the time the results attending its administration, and not to report their conclusions until they have given the matter a fair and somewhat extended trial.—*Edinburgh Med. Journ.*, Jan. 1863.

47. *Dropsy of the Ovum*.—Dr. McCLINTOCK read before the Dublin Obstetrical Society (Dec. 13, 1862) an interesting paper on this affection, illustrated by a number of cases.

"It must be confessed," he remarks, "we know very little of the pathology of this complaint, or of the special conditions which give rise to it. In very many of the cases which have fallen under my observation I have instituted careful examinations on these heads; yet, in but few examples was there any notable appearance of disease of the amniotic membrane. In these exceptional cases the amnion was partially opaque and thickened, but nothing more. That the disease does not depend on a dropsical diathesis of the woman herself is shown by the fact that these women are often free from dropsical effusions in any other part of the system; and also, that very many patients are affected with general dropsy at the time of delivery, in whom, nevertheless, there is no marked redundancy of the amniotic fluid." \* \* \*

"A dropsical state of the amnion is a very common morbid condition of abortive ova; and I cannot help thinking, with the late Professor Andrew Retzius, of Christiania (who drew my attention to this fact when looking over the Museum of the Lying-in Hospital), that it is a very frequent cause of the early death and expulsion of the embryo.

"Of thirty-three cases of amniotic dropsy carefully noted by me, *one* ended in abortion at the fifth month, and *one* at the sixth month; *ten* resulted in the decidedly premature expulsion of the foetus; and in the remainder the child seemed to have, at all events, reached the ninth month, though in some of them it most probably had not completed it.

"There seems good reason to believe that some of the cases of the disease called 'hydrometra,' or dropsy of the womb, were of the kind now under consideration—were, strictly speaking, a disease of the ovum, and not of the uterus; just as the so-called hydatids of the uterus is, in truth, a disease affecting only the involucre of the embryo. Many of the recorded cases of 'hydrometra' admit of a much more rational explanation of their history and phenomena, and one more consistent with the physiology of the uterus, on this supposition than on any other pathological view.

"This morbid excess of the liquor amnii, or, perhaps, the morbid action from which it results, seems to be very unfavourable to the well-being of the foetus, as *nine* of the children were dead born, *five* of which were in a putrid condition; and *ten* of the live-born children died within a few hours after birth. It occurred more frequently with female than with male children, in the proportion of *twenty-five* of the former to *eight* of the latter. The great difference between these numbers is very remarkable, and would almost suggest the probability of there being something more than a mere accidental association of this disease with children of the female sex.

"The presenting part of the child was noted in *thirty-one* instances—and among these the head presented on *twenty* occasions, the pelvic extremity *nine* times, and the upper extremity *once*. We could not, from these numbers, safely infer that a redundancy of the liquor amnii favoured preternatural presentation, because there is another circumstance connected with these cases which would go far to account for it, namely, the great frequency among them of premature labour—of the *thirty-three* cases nearly one-half having terminated in the premature expulsion of the ovum.

"In the acute form of this disease it would perhaps be rather difficult to trace



the symptoms to their real cause, unless the dropsical condition of the amnion was discoverable by physical examination. The enlarged uterus may be confounded with plural pregnancy, or with ascites. Where there is much distension of the uterus a feeling of fluctuation will be communicated, with great distinctness, to the hand on percussing the abdomen, so that, in extreme cases, it would be impossible to arrive at a positive conclusion by this mode of examination. Internal examination will generally supply stronger evidence. The expanded state of the cervix, the extreme tension of the lower segment of uterus (or of the membranes, if the os be open), and the ease with which the child can be displaced, are all corroborative signs of the ovum being unusually distended with fluid. With reference to the last-mentioned sign, we must bear in mind that a dropsical ovum may coexist with immobility of a presenting fœtus.

"Some writers have stated that inaudibility of the fetal heart's sounds, and of the placental murmur, are results of amniotic dropsy. But this observation can only be received in a very qualified manner. No doubt, in a considerable proportion of these cases the child *is* dead, and its heart, therefore, inaudible; in many of them the patient is still far removed from the end of pregnancy, and this in itself creates a difficulty to hearing the fetal heart; but, in these and the remaining cases, we may generally succeed in detecting it, as I myself repeatedly have done, by persevering and diligent exploration.

"In a few instances I have heard the placental murmur distinctly, and with all the characters belonging to it. In these cases I discovered it accidentally. Not having sought for it in any of the cases, I cannot say whether it is more or less easy of detection than under ordinary circumstances. The entire superficies of the uterus is certainly very much increased, but in the same proportion is the placental area increased; and I have little doubt it is the interference arising therefrom to the placental circulation which causes so many of these fœtuses to be born in a dead or dying state. The first stage of labour is very commonly protracted in these cases from inertia, caused by the over-distension of the uterine fibres. Occasionally the cervix is completely effaced, and the mouth of the womb in a somewhat dilated state for days; but the uterus seems incapable of making any vigorous effort to expel its contents, or to rupture the membranes."

\* \* \*

"A question of deepest interest connected with this disease of the ovum is its influence on maternal mortality. Now, of the 33 cases here reported, four ended in the death of the mother. One was from rupture of the uterus (the child, in this instance, was hydrocephalic); another from puerperal fever, at the time epidemic; and the other two deaths were from debility and prostration. Each of these latter women had been confined of twins, and were in a broken-down state of health at the time of delivery. The above results will abundantly justify the observation, that a comparatively high rate of mortality may be expected amongst patients who are the subjects of dropsy of the ovum. One very influential reason for this may be found in the fact, that a large proportion of these women are in a more or less cachectic debilitated condition of body; in fact this state may be regarded as a strongly predisposing cause of the disease. Of the women who recovered, *three* had smart attacks of uterine inflammation after delivery. Altogether, then, it is plain that these patients, more than others, require to be closely watched during child-bed.

"I know of no treatment capable of arresting the secretion of the liquor amnii, or of causing its absorption where already secreted to an excessive amount. I have made trial of mercury, hydriodate of potash, diuretics, and other remedies, but could not perceive any good effect from their employment. Of course, when the distension of the uterus becomes enormous, puncture of the membranes must be performed, even though labour may yet seem distant, in the natural course of events. The patient may suffer much pain and discomfort, apparently connected with the disease in question; but where as yet the distension of the uterus is not so great as to justify a measure which we know will bring on labour. If it were possible to draw off only a portion of the fluid contents of the amnion, perhaps labour would not immediately follow, and doubtless great relief would accrue to the patient, who could thus be carried forward in her pregnancy."

\* \* \*

"The effect of this super-excess of liquor amnii upon the process of labour is generally, indeed I may say always, to retard it. The pains are constant, but not severe—not amounting to the degree of a regular labour pain; but yet they are most teasing to the patient. Very many hours, or even days, as we have seen, may be consumed in this way, before the os uteri will have reached the size of a penny. Under circumstances such as these, and where the accession of labour has evidently taken place, there may be no hesitation about letting off the water, with such precautions as the position of the fœtus may call for." \* \*

Dr. McC. thinks that the facts he has adduced enlighten on the following important points:—

"1. Dropsy of the ovum certainly does *not* depend on any dropsical diathesis of the patient herself. This fact, I think, is clearly established.

"2. There is no doubt, also, that it may occur quite independently of any dropsical condition of the fœtus, such a concurrence being but very rarely met with; and hence being, we may presume, purely accidental.

"3. It is not constantly associated with any appreciable morbid condition of the membranes or placenta; at least in some exceptional cases only did they present any deviation from their ordinary appearance.

"4. The cause of the dropsy would seem to be a purely local one. This is inferable from the frequently observed fact that in pleural pregnancies, where the disease was present, it was confined, in every instance, to one ovum only.

"5. My experience of this disease does not lead me to think that it has any connection with syphilis. In only one of all the cases on which these observations are founded was there any just ground for supposing the woman to be infected with syphilitic poison. In this exceptional case, father, mother, and child, all presented unequivocal venereal symptoms.

"With regard to the *functions* of the amnion, we meet with three classes of facts which help to illustrate them:—

"1. Cases of plural births occasionally are met with in which one of the fœtuses having been blighted, the fluid contents of its enveloping amnion have disappeared. This I would attribute to its absorption by the membrane itself.

"2. Again, we meet with cases in which the liquor amnii presents a very altered appearance—all its sensible characters being changed, and, instead of being transparent, thin, and inodorous, it is thick, turbid, and fetid. This is an instance of morbid or perverted secretion.

"3. Lastly, we have seen that the quantity of the secretion may be enormously increased.

"These facts all concur in strengthening the analogy between the amnion and serous membranes, by showing that it can, under certain circumstances, *increase*, *absorb*, or *alter* its proper secretion.

"All this does not carry us far, however, towards explaining how the disease in question is produced. But I believe we must rest content with this limited amount of knowledge till physiologists make us better acquainted with the vital constitution of the amnion and other temporary organs concerned in the nutrition and development of the fœtus."

48. *Unusual Density of the Amnion.*—Dr. SAWYER read before the Obstetrical Society of Dublin (Jan. 10, 1863) a paper on this subject.

On the 8th of June, 1861, he was hurriedly sent for to see a woman at the hospital whose "womb was turned inside out." On going to the labour-couch he found a nurse of considerable experience in a state of trepidation, pressing a napkin against the vulva. On examination he found a dark mass, about the size and shape of a small melon, protruding. On pressing the tumour the fluctuation relieved his mind. He found the womb of the usual size, and the amnion unusually dense and opaque, the rent through which the child passed being unusually small. In the next case he had had forty-eight hours' suspension of labour from density of the amnion. The Registrar requested him to visit Mary M——, and stated that as all pain had ceased for the two last days, he had the forceps with him, a number of pupils being on the look-out for an operation. On reaching the house he (Dr. Sawyer) found the place crowded with people, one of whom, recognizing him, cried out, "Oh, here's th' ould docther; run for the priest,



Biddy," an expression of her confidence which he duly appreciated (laughter). The woman's health had been good. It was her fourth child. Labour pains set in on Thursday night, and continued until the following Friday evening, when they gradually ceased. The midwife thought the waters had broken, but as the woman had incontinence of urine for some weeks, she could not be certain. The great size of the uterus convinced him that the membranes were whole. He found the os greatly dilated, and concluded that the delay was caused by over-secretion and the unusual density of the membranes. He gave her half a drachm of ergot in a tumbler of punch, and in ten minutes the bag became prominent, but he could not rupture it, either with his finger or tooth-pick, and was obliged to resort to the bistoury, when the waters rushed out, and labour was complete. His third case was one that occurred early in December. In the first confinement of the patient he had had the privilege of Dr. Churchill's assistance; and in her second confinement, in which there was a remarkable case of secondary hemorrhage, he had the advantage of Dr. Kidd's assistance. When called in on the last occasion, the second stage was completed. Having in her first confinement experienced considerable difficulty in suppressing hemorrhage, he took more than usual care. He put on the binder, and placed a dry napkin over the vulva. He then left the room for fifteen minutes, and on returning, the nurse showed him the napkin quite dry. Struck, however, with the pallid hue of the patient, he took off the binder and passed his hand up the vagina, when he found a soft tumour protruding through the partially closed cervix. While making the examination, there was a most alarming rush of blood, followed by contraction of all portions of the uterus, compelling him to extract the uterus.—*Dublin Med. Press*, Jan. 21, 1863.

49. *Dislocation of the Ensiform Cartilage during Pregnancy*.—Dr. ROBERT SIM relates (*Edinburgh Medical Journal*, February, 1863), the following unique case of this accident:—

"The lady in whose case the eversion took place is rather under middle height, of a symmetrical form, and in the prime of life.

"About the end of the sixth month of her recent pregnancy, which was her fifth, she began to complain of great pain in the right side; but, as Dr. Mackay observes, it would be difficult to ascribe this pain to the eversion of the ensiform cartilage. There was pain at the place where it was turned over, but there was also great pain lower down, in the right hypochondriac region, the cause of which I must leave to you to explain, as I know of no satisfactory reason given for the existence of these very violent pains, sometimes so distressing, during the last months of pregnancy.

"The patient was delivered of twins in the month of October last, and my attention was drawn by her to a 'lump' under the right mamma, a few days after the confinement. I must tell you that this lady lives in constant dread of cancer of the breast, and that, when she drew my attention to the swelling, she evidently supposed it to be a scirrhus tumour. For two or three days I was afraid that her fears were too justly entertained; but, after observing the tumour for a few days longer, I was gratified to find that it was gradually diminishing in its circumference, and that the hard central part was also changing its form and position. In short, I soon discovered that the hard central part of the swelling, which remained after the disappearance of the surrounding tumefaction, was simply the ensiform cartilage, which had been gradually everted, pressed upwards, and turned over to the right side by the encroachment of the gravid uterus. On the uterine pressure being removed, the cartilage gradually rose from its abnormal position. At first I could hardly insert my forefinger between it and the cartilages of the ribs on which it lay. After some time it was at right angles to the sternum, and thenceforth its progress to its own place was more rapid. At the end of the sixth week from parturition, the cartilage had resumed its proper position.

"There was nothing unusual in the labour. Its duration was only about three hours. The presentations were—first feet, next head. The liquor amnii was not unusually abundant, nor was there anything remarkable about the size

of the placenta. The twins, together, weighed twelve and a half pounds avoirdupois. The former births were all single.

"The length of the sternum is seven inches, that of the ensiform cartilage rather more than two. The distance from the sternum to the pubis I have not ascertained, nor other abdominal measurements."

50. *Pessary retained Thirteen Years.*—Dr. KIDD exhibited to the Obstetrical Society of Dublin (Jan. 10, 1863) a pessary which he had removed from the vagina of a woman on the previous day. She stated that he had himself introduced it for her thirteen years previously, and that she allowed it to remain with the greatest comfort to herself until within the last fortnight, when she began to experience a pain in the back, while some discharge took place from the vagina. The string had broken soon after it was put in, so that she was not able to remove it. The pessary was composition—a mass of tow covered over with India-rubber. He effected its removal by introducing one of the blades of Dr. Churchill's forceps, which he got above the mass, extracting it with the greatest difficulty. In another case he removed a pessary after a year, and on that occasion he had recourse to both blades of Dr. Churchill's forceps. The pessary was coated over with an immense mass of calcareous matter.—*Dublin Med. Press*, Jan. 21, 1863.

51. *Suprapelvic Hæmatocele.*—In the accounts given of this affection, the blood is generally described as being contained in the peritoneal *cul-de-sac* behind the uterus, and as forming a tumour capable of being felt through the rectum and vagina, and sometimes by pressure in the hypogastric region. Some cases, however, which have come under M. GOSSELIN'S observation, have led him to the conclusion that the effusion from the ovary may (from some as yet unknown cause) be arrested *above* the pelvis, and form a tumour capable of being detected by palpation in the hypogastric region alone, and not by the vagina or rectum. One patient under his care presented on two separate occasions, after symptoms resembling those of peritonitis, a tumour of the size of a fist in the left side of the abdomen; it disappeared readily each time, without any discharge of pus by the alvine excretion, by the urine, or by the vagina. M. GOSSELIN proposes to term this variety "*suprapelvic hæmatocele.*"—*British Med. Journal*, June 7, 1863, from *Gaz. des Hôpitaux*, 19 Avril, 1862.

52. *Placentæ of Triplets.*—Dr. GRIMSDALE showed a specimen of placenta of triplets to the Liverpool Medical Institution (December 11, 1862). All the three children are now alive. Two of them measured each eighteen inches in length, and the other seventeen; they were strong children. The placenta were by no means small; two of them were connected together, the third was quite separate.—*British Medical Journal*, January 10, 1863.

53. *Induration of the Sterno-Cleido-Mastoid Muscle in New-Born Infants.*—Dr. MELCHIORI, calls attention to occasional occurrence in new-born infants of an induration of the sterno-cleido-mastoid muscle; an affection not hitherto described, we believe, by any writer.

Some time after birth, an infant is occasionally observed to move its neck with difficulty and to suffer more or less pain from such movement. On examination, there will be found in the substance of one of the sterno-mastoid, a hard fusiform tumour of sometimes notable size. In all the cases observed by Dr. M., the tumour disappeared by resolution and the muscle recovered its functions. The disease at the onset appearing inflammatory, emollients are indicated, afterwards the treatment is expectant. Dr. M. cannot ascribe the affection to any well determined cause; but he thinks that it may be attributed to the compression of the muscle, and to the rupture of some of its fibres during delivery.

Dr. Dolbeau has recently observed a case of this at the Hôpital St. Louis, in a new-born infant. The tumour was of the size of a large almond, and was seated in the right sterno-mastoid muscle—there was no discolorization of the skin.—*Gazette Hebdomadaire de Méd. et de Chirurg.*, 19 Sept. 1862, and *Annali Omoclei*.



## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

54. *Dialysis as applied to the Detection of Poisons in Medico-legal Cases.*—Mr. E. R. HARVEY, Lecturer on Physical Chemistry at St. George's Hospital, relates (*Lancet*, Jan. 3, 1863) a number of experiments made by him in the laboratory of the St. George's Hospital, with a view of determining the value of dialysis as a method of separating poisons from organic mixtures. From these experiments, he states, it appears that metallic poisons are detected far more rapidly by dialysis than are organic substances; that the presence of colloidal matter does hinder, to some extent, the separation even of the inorganic crystalloids; and that if colloidal matter be placed on a dialyser, a small quantity of it will be found, in twenty-four hours, in the diffusate. Thus, although dialysis may in some medico-legal cases be of assistance to the chemist, it would be dangerous to regard it as a substitute for the old and approved methods of analysis when poison is suspected.

55. *Poisoning of a Child by a large Dose of Morphia.*—Mr. L. WINTERBOTHAM records (*Lancet*, Jan. 3, 1863) a case in which a child two years and three months old, swallowed a solution of a grain of acetate of morphia in an ounce of oxymel of squills. It remained undisturbed in the system for two hours and a half. At the end of this period free vomiting was induced by an emetic of sulphate of zinc, and under the use of the ordinary remedies recovery took place.

56. *Poisoning by Morphia—Caffeine as an Antidote.*—Dr. ANSTIE records (*Med. Times and Gaz.*, Feb. 7, 1863) a case of poisoning by three grains of morphia given inadvertently as an injection. Caffeine was given with temporary benefit, but the patient died 16½ hours after the administration of the enema.

This case, Dr. A. says, signally refutes the notion which unaccountably prevails that opiates do not act so powerfully when given by the rectum as by the mouth.

Dr. A. views favourably the plan of treating such cases by caffeine as recommended by Dr. Campbell, of Augusta, Ga., and successfully employed by him in one case (see this Journal for July, 1860, p. 282), though it failed in another (see this Journal for Oct. 1860, p. 570).

"The teaching," he says, "of all the experiments which have been made with caffeine is, that this substance has a very powerful stimulating influence upon the heart, as, indeed, we might expect beforehand, from familiar acquaintance with the effects of its diluted form—coffee and tea. The action of the heart being once roused, the languid circulation of the brain is quickened, and the patient is restored to a certain degree of consciousness, perhaps sufficient to enable him to take part in the measures adopted for his recovery. For these reasons, it appears to me that caffeine is an appropriate physiological antidote to opium—far more so, at any rate, than belladonna, towards which attention seems to have been attracted solely on account of the apparent opposition between its effects and those of opium on the pupil, which appears to me an insufficient basis for the hypothesis that the two agents are mutually antagonistic in their effects on the nervous system generally. \* \* \*

"It must be remembered that opium kills, by causing a cessation of the respiratory movements. One of the best means to meet this danger is, doubtless, the employment of artificial respiration; but a far better way of preventing its occurrence at all is to keep the brain, and, consequently, the intelligence and consciousness, in a state of activity. If once a patient, suffering from opium poisoning, becomes thoroughly unconscious, he becomes unable to make those voluntary efforts at respiration which are far more likely to prevent its cessation than artificial processes are to restore it when once it has ceased.

"Now, there can be little doubt that caffeine quickens the circulation generally; and there are some special reasons for thinking that it especially exerts

an influence upon the circulation of the brain; it would, therefore, be well adapted to this particular purpose."

57. *Poisoning with Belladonna successfully treated with Opium.*—[This is the heading to the following case recorded in the *Dublin Quarterly Journal of Medical Science*, February, 1863. We extract it, though we must say that we do not attach much value to it as adding anything to the facts already recorded showing the antagonistical action of belladonna and opium. The case is too imperfectly detailed; there is not sufficient evidence that the child took a decidedly poisonous dose of the belladonna, and further the amount of opium which sufficed to arrest the symptoms was so small that we cannot but suspect the patient might have got well without the administration of the antidote.]

"John Mulligan, aged two years and two months, was admitted into the Meath Hospital, under the care of Surgeon Macnamara, on the 31st day of October, 1862, labouring under the effects of poisoning by belladonna.

"*History.*—His mother stated that she lives at Rose Hall, Templeogue, County Dublin, and that, about half-past nine o'clock this morning, the child got into an empty room in which there was a small pot containing extract of belladonna, of which the child must have taken some, for she found his face and clothes smeared over with it. Some time after she saw the child fall, and then remarked that he had a wild look about the eyes, upon which she brought him into hospital at half-past three o'clock P. M.

"*Symptoms.*—On examination I found the pulse strong, the pupils greatly dilated, he picked and pulled at his clothes, and was delirious. The mother having brought the pot which was found with the child, the contents were at once recognized to be extract of belladonna.

"*Treatment.*—On the patient being put to bed I gave an emetic consisting of sulph. of zinc. gr. x, and pulv. ipec. gr. vi, which had the desired effect; the matter vomited had no trace of belladonna. Surgeon Macnamara having been sent for, ordered an enema of castor oil and turpentine to be given, which came away without any signs of belladonna being present in it. A short time after, five drops of tincture of opium were given; after one hour three drops, and every hour after two drops, until the patient fell asleep, which was at a quarter before one o'clock A. M., up to which time there was no apparent contraction of the pupils. He slept quietly until ten minutes before two o'clock, when he started up and began crying. I then remarked, for the first time, that the pupils had contracted a little; he fell asleep again in about five minutes, and slept quietly until half-past six o'clock A. M., when all the delirium had passed away, and the pupils were a little more contracted. He has been running about the ward all day.

"*Result.*—November 1st, at 12 o'clock, Surgeon Macnamara ordered two drops of the tincture of opium to be given, and he has been going on remarkably well ever since; six o'clock P. M., going on well, contraction of the pupils apparent; ten o'clock P. M., sleeping soundly.

"November 2d, three o'clock A. M., slept soundly all night, the pupils still a little dilated. Ten o'clock A. M., the patient has left the hospital cured."

58. *Rupture of the Heart attributed to direct Violence.*—Dr. DICKINSON exhibited to the Pathological Society of London (Jan. 6, 1863) a specimen of this. The subject from whom it was obtained was a child 5 years of age, who was knocked down and run over by a cart. When brought to the Hospital she was quite dead. There was no mark of injury upon any part of the body. At the post-mortem the pericardium was found to be full of blood, which had issued from a transverse rent across the apex of the heart, which cut off all but a sort of fringe on the anterior aspect. Both ventricles were laid open. The muscular substance was torn to a greater extent than the pericardium. The spine and ribs were unbroken, and there was no injury to any other organ. It was obvious that the injury to the heart had been occasioned by the accident. A sudden spasmodic action, from terror or exertion, even if sufficient to rupture the perfectly healthy heart of a child, which is highly improbable, could scarcely be supposed to tear both ventricles in exactly adjoining situations. Moreover,



when the heart is ruptured spontaneously it is almost always found that the rent is considerably higher up the wall of the ventricle than in the present case. Dr. Dickinson concluded that the cart had passed over the back of the child, and compressed, without breaking, the yielding structures of the thorax, so as to squeeze off the apex of the heart by means of some prominent bone, probably a rib. It must be noted that the rupture commenced on the posterior aspect of the heart.

A case was then related of a patient, thirty-five years of age, whose leg had been crushed by a gate falling on it. The leg was amputated; the man died suddenly some days afterwards. The right ventricle was found to be ruptured, probably, in this case, from mental emotion.

Mr. Hutchinson mentioned a similar case. In it a child was knocked down in the street, and died on its way to the London Hospital. There was no mark of bruise on the chest nor any fracture of rib, but the heart was found ruptured; the right lung near its root was also torn. The evidence was conflicting as to whether or not the wheel had passed over the child, but in all probability it had done so. The elasticity of the walls of the chest in children might account for the non-occurrence of fracture of ribs, and the fact that death took place from sudden and complete arrest of the heart's action, for the entire absence of bruising or ecchymosis.

Dr. Brinton said that rupture of the heart would follow the most severe accidents, for instance, a blow on the head. He could scarcely accept Dr. Dickinson's theory of the cause of rupture in his specimen.

Dr. C. J. B. Williams alluded to great contraction of the walls of the ventricle in the specimen exhibited.

Dr. Leared related a case in which a man died suddenly after the fall of part of a wall on him. The pericardium was full of blood, and there was a jagged rupture of the ventricle.

Mr. Spencer Wells related a case in which a sailor, having been struck on the chest by an officer, walked away and died shortly afterwards, whilst vomiting. There was a small aneurism of the aorta, which had been ruptured. The question raised on the trial was, whether death was due to the blow or not?—*Med. Times and Gaz.*, Jan. 3, 1863.

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#### MISCELLANEOUS.

59. *State of Epidemic Disease in Great Britain in 1861-'62.*—Dr. J. N. RADCLIFFE read a detailed report on this subject before the Epidemiological Society (Dec. 1, 1862).

The report referred to the twelve months ending September 30, 1862. The following is a recapitulation of some of the principal facts recorded: The health *status* of the English population, as estimated from the unusually low rate of mortality throughout the year, was generally good, notwithstanding dearth of provisions and an excessive amount of pauperism. The health *status* of the Scottish population was markedly below the average, as shown by the large amount of sickness prevalent in the last quarter of 1861, and the high rate of mortality since the commencement of 1862. The average death-rate of Scotland, it is well to remark, is below that of England. Thus, during the six years 1855-60, the annual proportion of deaths in England was 219 per 10,000 population; during the same period in Scotland the proportion was 208. The high range of temperature in the winter months, and low range during the summer, in England, exercised a favourable influence over the health, notwithstanding much wet and variability of weather. In Scotland similar conditions of temperature and weather existed, but to an exaggerated extent; and the great changes which were experienced, and especially the undue humidity of the atmosphere, were apparently the fostering causes of the influenza and throat affections, which appear to have been more common there than in England. The epidemic

diseases most prevalent in England were continued fever, scarlatina, measles, diphtheria, whooping-cough, and smallpox. In Scotland the same diseases, with the exception of smallpox; also, and more particularly, sore-throat, often assuming a diphtheritic character, and accompanied by diphtheria, played the chief part in the epidemiology of the twelve months. In both parts of the kingdom continued fever prevailed most commonly in the autumn quarter of 1861; and in England the affection would appear to have been more general in the northern than in the southern portion of the kingdom. In both countries scarlatina was widely prevalent in the northern districts in the last quarter of 1861; but the disease became more active in the southern district in the third quarter of 1862. Measles prevailed extensively, and in some instances very fatally, in the winter quarter in England. In Scotland the disease appears to have been most prevalent in the spring and summer quarters. Diphtheria was, in England, principally fatal in the autumn quarter, but the disease prevailed, more or less, in every registration district during the year. In Scotland, the disease, together with sore-throat, appears to have been epidemic throughout the year. Whooping-cough was widely prevalent in England during the winter quarter; in Scotland, during the winter and spring quarters. Influenza was epidemic in Scotland in the autumn and winter quarters. Finally, smallpox broke out in many districts of England, but more particularly in the eastern, southwestern, and northern counties, and in Yorkshire. In no instance did an outbreak of any of the different diseases referred to as occurring in England assume what may be termed "general proportions." The outbreaks were essentially local; but the dispersion of the various maladies, or of their centres of manifestation, over the kingdom—the cropping out of exaggeration of these diseases in different localities, and the effects they apparently exercised upon the sickness and mortality of certain districts, without heightening the death-rate of the whole kingdom—present a study of great interest. From this study it is reasonable to conclude that, in dealing with these local outbreaks of epidemic disease in ordinary periods, the best chance is afforded of warding off the widespread and more deadly outbreaks of extraordinary periods. The detailed mortuary returns for Scotland extend, as yet, only to the year 1857; but the returns for England are brought down to 1860. From the latter, then, may be obtained information as to the *status* of the several epidemic diseases most prevalent in the twelve months discussed, immediately prior to that period. Since 1857 the mortality from continued fever has slowly declined; in that year the deaths from this cause amounted to 19,016; in 1860 they were 13,012. In 1855 the mortality from scarlatina was 17,314; in 1856 and 1857, the number of deaths from this disease fell considerably, the mortality in the latter year being 12,646. The year following the mortality increased enormously, becoming well nigh doubled, the number of deaths from the malady being 23,711. In 1859 the number fell to 19,310; and in 1860 it became as low as 9305. Prior to 1855 deaths from scarlatina, cynanche maligna, and diphtheria, were not separated in the Registrar-General's report. Whether the detailed reports of the Registrar-General will show an increase of the mortality in the whole of England from scarlatina, during 1861 and 1862, as great as occurred in London, cannot be predicted. It is certain, however, that the activity of scarlet fever was great in several parts of the kingdom. The deaths from cynanche maligna in 1855 amounted to 199; in 1858, to 1770; in 1860, the mortality from the disease had decreased to 376. The mortality from measles was largely augmented in 1858, and there was a steady increase in the number of deaths from the disease in the two subsequent years. The deaths registered from diphtheria in 1855 numbered 186; in 1859, 9587; in 1860, the mortality from this disease had decreased to 5212. The mortality from whooping-cough, in 1860, was the lowest since 1852; and the mortality from smallpox had declined from 6460 in 1858, to 2749 in 1860. The reduced rate of mortality throughout England which occurred in 1860, was chiefly due, Dr. Farr states, to the decline of the number of deaths from scarlatina, diphtheria, and diarrhoea. A decrease also in the mortality from smallpox, erysipelas, and cholera contributed to the favourable results. The most noteworthy fact in the epidemiology of the metropolis during the twelve months was the remarkable outbreak of typhus. In 1858, 1859, and 1860, typhus had



become so rare a disease in London, that the question of converting the Fever Hospital to other uses was seriously entertained. In 1861 typhus again became epidemic; and since January, 1862, the number of admissions to the Fever Hospital for typhus has exceeded that at any period of the history of the Hospital. Dr. Murchison attributes this epidemic to the artificial scarcity produced by the system of strikes, which had for some time previously disorganized the labour market, and the condensation of population caused by the arrival of labourers in the metropolis from the country in search of work.<sup>1</sup> The mortality from continued fever in London, doubtless owing to the outbreaks of typhus, was in excess of that of any like period since 1848. Indeed, the total mortality of the winter, spring, and summer quarters of 1862 (2839) from this disease was alone in excess of that of any year since 1848. The true source of this excess of mortality would not have been rightly understood except by the careful nosological and etiological distinction of the forms of continued fever insisted upon by Dr. Murchison. The mortality from scarlatina was but a little below that from continued fever during the twelve months—the total mortality from the former malady being 3437; from the latter, 3463. Next in order of mortality was whooping-cough. Continued fever, scarlatina, and whooping-cough were the chief epidemic affections of the period under observation in the metropolis. The mortality from continued fever increased to a maximum in the second quarter of 1862. The mortality from scarlatina was at its maximum in the last quarter of 1861, then decreased throughout the two succeeding quarters, but largely increased again in the summer quarter of 1862. The mortality from whooping-cough was greatest in the first quarter of 1862. Diphtheria was still largely fatal, having occasioned 625 deaths. Mr. Radcliffe detailed the history of the outbreak of typhus at Preston, in Lancashire, to the date of reading the report: he dwelt also at some length on epizootic diseases, brought together the chief accessible information on epiphyties, and terminated his report by a brief analysis of the principal contributions to epidemiological literature in Great Britain during 1861–62. The chief diseases prevalent among domesticated animals were epizootic pleuro-pneumonia, and the vesicular disease of the mouth and feet. Scores of sheep suffered and were lost from *filario* in the bronchial tubes and abomasum; there were several local but very fatal outbreaks of influenza among horses; and an outbreak of *variola ovina* occurred in Wiltshire. The history of the latter outbreak, which occasioned great alarm at the time, will be imperfect until the official reports are published. There was no special disease among plants during the year.—*Medical Times and Gazette*, February 14, 1863.

60. *Sir David Brewster on the Characteristics of the Age.*—The following extracts from the address delivered at the opening of the winter session of Edinburgh University by Sir David Brewster, will be found interesting:—

Were we asked to characterize the age in which we live, we should describe it as remarkable for its love of the mysterious and the marvellous, its passion for the supernatural, and its morbid craving for what the eye cannot see, nor the ear hear, nor the judgment comprehend. I do not allude to clairvoyance and spirit-raising, which are even now misleading men of high attainments, but to more specious extravagances appealing at this moment to our faith, and more likely, from their alleged foundation in science, to captivate the young and the unwary. These speculations have been long working in the public mind, fascinating us occasionally in the creations of the poet, and investing the humblest observer with a power which he delights to exercise, and is therefore unwilling to resign. I refer to the so-called science of physiognomy, but more especially to that morbid expansion of it called the physiognomy of the human form, which has been elaborated in Germany, and is now likely to obtain possession of the English mind. The fundamental propositions of this new art are, “that the outer form of man has been designed on purpose to represent his mental character,” “that the invisible is revealed in the visible,” “that the body is the

<sup>1</sup> See Dr. Murchison's recently published treatise on the “Continued Fevers of Great Britain” (page 52), for an account of this epidemic.

image of the mind," and that every man's mental nature may be discovered in his external form. The physiologist who has taken the most active part in advocating these opinions is Dr. Carus, of Dresden, Physician to the late King of Saxony, and so eminent professionally that he was recently elected a corresponding member of the National Institute of France. Had his speculations remained in the German tongue, I should not have ventured to bring them to your knowledge. They have been adapted, however, and extended, both by French and English writers, and having been brought prominently forward, and defended and amplified in the most religious, conservative, and best circulated quarterly journal of the day, they have taken an aggressive position which it becomes a public duty to assail. In support of this doctrine of symbols in the human form, as it is called, the leading argument is derived from the nearly universal assent to it implied in the practice of judging of men by their personal appearance. The opinions of Sir Thomas Brown, Addison, Cowper, Fielding, Southey, and others—men quite incapable of carrying on a scientific investigation—are all marshalled in its favour, and the student is thus prejudiced, at the commencement of his inquiry, by the authority of great names. A second argument is derived from the occurrence in various languages of such expressions as long-headed, stiff-necked, etc., which are supposed to establish the existence of a general belief in the correspondence, not only of mind and body, but of mind and shape. In want of any other arguments, our physiognomists dogmatically declare that the expressions of rage, or grief, or fear, have been "divinely designed on purpose that the inner mind may be known to those who watch the outer man." We know very little of the true inner life of our neighbours, and we should not like that our neighbours knew much more of our own. In some persons their inner life appears to be openly and injuriously displayed. In others it is artfully, wisely, and advantageously concealed; and frequently it is hidden by the very marks which are supposed to display it. Of the individual features which are assumed to be most symbolical of the intellectual and moral character, the size and shape of the head is one of the most important. Without any inductive evidence of this symbolism, we are asked to believe that large brains and ample foreheads are found in certain individuals of high intellectual capacity; but we never hear of the small brains and narrow brows of men of equal talent, or of the opposite class of imbeciles who have heads and brains like those of their neighbours. In this new physiognomy, a head large in the mid-region indicates a predominance of the feelings over the other faculties. A proneness to superstition and fanaticism is shown by a little increase in the elevation; and a head large behind evinces practical ability, and, as Dr. Carus says, characterizes a race which will give birth to great historic names! Small heads, however, are not to be despised. They indicate talent, but not genius; while very small ones belong, he says, to the excitable class from whom "a great part of the misery of society arises." In the varying expressions of the human face, physiognomists find a better support for their views. That the emotions of the past and the present leave permanent traces on the human countenance is, doubtless, true, and to this extent we are all physiognomists, often very presumptuous ones, and, excepting accidental coincidences, always in the wrong, when we infer from any external appearance the character and disposition of our neighbour. In every class of society we encounter faces which we instinctively shun, and others to which we as instinctively cling. But how frequently have we found our estimates to be false? The repulsive aspect has proved to be the result of physical suffering, of domestic disquiet, or of ruined fortunes; and, under the bland and smiling countenance, a heart deceitful and vindictive, and "desperately wicked," has often been found concealed. The countenance, too, which in manhood was noble and benign, we may have seen scarred in the battle of life, and furrowed with the deep lines which the baseness of friends and the injustice of the world never fail to imprint. And when the manly aspirant after wealth or fame has been cruelly worsted in the race of ambition, and has displayed on the outer man the impress of the emotions which disturbed him, how often have we seen him under altered circumstances resuming the joyous expression of his youth, which misfortune has but temporarily disguised. These views will acquire additional support if we



examine large groups of individuals living under the same influences, and therefore likely to have the same external development. In the haunts of vice, within the precincts of the gaol, in the stock exchange, and in the marts of commerce, we shall find the same variety of form and expression, and the same difficulty in discovering vice or virtue in the outer man. The criminal in the dock, charged with murder, will often bear an honourable comparison with the functionary who prosecutes him, the advocate who defends him, or the judge who tries him. In descending to individual features, the eyes, nose, mouth, chin, ears, and even the hair, are said to instruct us in the character of our neighbour; and the neck, trunk, hands, and feet become monitors in the same school. Of all these teachers, the eye and the nose are the most accomplished. Dr. Carus tells us that the eye speaks to us in its colours and in its lustre; that yellow indicates genius; dark blue, effeminacy; light blue and gray, activity; green, courage; and hazel, mental depth; and he pronounces this organ to be so richly symbolical that, instead of saying that the "style is the man," we might more justly say that the "eye is the man." In refutation of such assumptions, we assert that there is no expression whatever in the human eyeball, consisting of a transparent cornea, a coloured iris, with the pupil in its centre, and the white sclerotic coat. You may as hopefully search for expression in a watch-glass as in the cornea, as hopefully in a coloured wafer with a hole in the centre as in the iris, and as well in a piece of white kid leather as in the sclerotic coat. Such is a brief notice of the new science which is to maintain the waning excitement of more dangerous and offensive speculations. The talents and eloquence of its German and English expositors may obtain for it a temporary popularity; and philosophers, male and female, will doubtless study and apply its symbols.—*Brit. Med. Journ.*, Nov. 29, 1862.

# AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Circular from the Surgeon-General U. S. A.*—[We take pleasure in calling attention to the following circular, which we take for granted is all that is necessary to secure the cordial and general co-operation of the profession in the collection of the information desired by the Surgeon-General. The facts thus accumulated cannot fail to contribute to the advancement of our science, and be most useful to the profession :—]

SURGEON-GENERAL'S OFFICE,  
WASHINGTON CITY, D. C., Feb. 20, 1863.

The Surgeon-General would remind the medical profession that, some months since, a medical officer was detailed by the department to prepare the surgical history of the rebellion. It is intended that this history shall embrace, among other topics, the collected results of the gunshot injuries of the war, and of the operations performed for their relief.

Many facts, bearing on these subjects, can be obtained by an examination of the returns of the various military hospitals; and explicit orders have been issued to the surgeons in charge as to the manner of reporting. Yet it is found, practically, that the results of all cases cannot be included in these reports.

In every depot of wounded, and after every action, there exists a large class of injured men, who, in various stages of convalescence, pass from the observation and treatment of the military surgeon, and are lost sight of by the medical department. These patients are those who are either furloughed or discharged the service by military authority before their treatment is entirely terminated. Under such circumstances, all past records of these cases are rendered valueless from the absence of a positive knowledge of their results.

To remedy this evil the Surgeon-General appeals to the profession of the country, and solicits their co-operation. He would ask every physician and surgeon who may be called upon to treat any officer or soldier wounded in service, carefully to note the results of the case, to record his observations, and, when the case shall have terminated, to transmit a copy of his observations to the Surgeon-General's office.

The following form is suggested :—

FORM.

Date of Communication.

Character of Injury.

Name and Address of Physician forwarding it.

	Where wounded and date.	To what hospital transported.	What operations, &c., performed.	By whom performed.	Date of furlough or discharge.	Present condition of patients. Account of case. Treatment, &c. Result.
Patient's name and age.						
“ rank.						
“ regiment & Co.						
“ postal address.						



In all cases of recovery after *excisions* of bone, the amount and character of the movements executed by the patient, with the injured limb, should be accurately described. Where amputation has been practised, the character of the stump should be noted, especially when the operation has been performed through an articulation. In cases of compound fracture the point of fracture should be stated, as also the degree of efficiency of the limb remaining after treatment. In compound fractures of the femur the amount of shortening should be measured, and the strength and usefulness of the limb described. In those patients in whom injuries of the skull have occurred, or upon whom the trephine has been applied, the mental and physical conditions should alike be dwelt upon.

In thus placing before the profession the objects he desires to obtain, the Surgeon-General trusts that he will meet with active co-operation. By the means above indicated much information that is valuable may be collected, and the interests of the science of surgery materially advanced.

W. A. HAMMOND,  
Surgeon-General U. S. A.

Medical journals will please copy.

#### DOMESTIC SUMMARY.

*Double Vision with each and both Eyes.*—Dr. G. A. BETHUNE records (*Boston Medical and Surgical Journal*, February 12, 1863), the following example of this remarkable disturbance of vision:—

"Mrs. —, aged 37, the wife of a physician, and who had formerly taught in one of the highest of our private schools, consulted me first on the 10th of March, 1862. Naturally far-sighted, and without previous trouble in the eyes, eighteen months ago, after unusual exertion in studying, she was seized with double vision with each and both eyes. She suffers no pain, photophobia, or other subjective symptom. This diplopia does not extend to very near objects, the nearest point being from four to five feet. The new moon she describes as seeing with four horns. The false image seems always to the *left*, except in the case of horizontal lines, as, for instance, a telegraph wire, when it appears *below*. The appearances are the same with either eye covered. By bending the head, she *thinks* to the *left*, the two images coincide. She thinks there has been no variation in the double vision since she first observed it, *when the circumstances are the same*. She observes it more when looking towards the sky, and in clear light, than when the light is weaker.

"She is rather a delicate-looking person, though her general health is good. Her hands and feet are apt to be cold. About six months ago she was attacked with tinnitus of both ears, which still continues.

"On examination, the only abnormal appearance in the eyes is a little tinea ciliaris. She was advised to rest the eyes, to apply a lotion of acetate of lead to them, and a stimulating lotion to the spine. To take sherry wine, and exercise in the open air up to her strength.

"*Jan. 17, 1863.*—Was again seen to-day. No change in eyes. Other things as above, except that the tinnitus has diminished. The left pupil was dilated with atropine, and the eye examined with Burrow's ophthalmoscope. *Nothing abnormal seen.* Two repetitions of this examination, on different days, were made with the same result."

*Chestnut Leaves in Whooping-Cough.*—Mr. GEORGE C. CLOSE, of Brooklyn, N. Y., speaks highly of the efficacy of the chestnut leaves in whooping-cough. He states that by the recommendation of a physician of New York he gave to

a child with incipient whooping-cough, an infusion of the leaves of the chestnut, made with boiling water and sweetened with sugar. She drank it freely and without objection, the taste not being unpleasant. The cough, which had continued for two weeks, and was evidently growing worse previous to giving the remedy, was immediately relieved, and after two or three days ceased entirely, and has not returned though several months have passed.

Since making this trial, when asked by customers, "What is good for whooping-cough?" he has advised them, if they had no physician in attendance, to try the leaves. In several instances after trying them, they have reported that "they acted like a charm," and gave immediate and great relief.

"I have also heard," he says, "of cases of adults, who were affected with that kind of spasmodic cough which is sometimes caused by some (perhaps slight) source of irritation in the throat, being immediately relieved by the same remedy.

"As I have, occasionally, calls for chestnut leaves, I asked a person who applied for them a few days since, for what purpose he used them? He replied, as a remedy for whooping-cough, for which they were very good, and that they often relieved other kinds of cough also. This shows that their use is becoming somewhat popular as a domestic remedy.

"A very extensive use of an article is required, however, to test its real value as a remedy, and I only present the foregoing facts as warranting, in my judgment, farther trials of the leaves."—*Proceed. Am. Pharm. Assoc.*, 1862, and *Am. Journ. Pharm.*, Jan. 1863.

*Active Principles of Veratrum Viride.*—Mr. G. J. SCATTERGOOD, of Philadelphia, has isolated the active principles of the root of veratrum viride, and tried their effects separately on the animal system, in order to ascertain to which of these principles the sedative action of the plant is due.

These principles he says, "appear to be, Firstly: Veratria. Secondly: An alcoholic resin.

"They are obtained in the following manner: The finely ground root is exhausted by the smallest possible quantity of strong alcohol. This tincture is slowly poured into a larger bulk of water, and the mixture exposed to a gentle heat to drive off the alcohol. When this is done, the liquid is raised to the boiling point, and immediately filtered. The resin remains in the filter, while the veratria which appears to exist in this drug in a form soluble in boiling water, is found in the filtrate, from which it may be precipitated by the addition of ammonia. The alkaloid thus obtained is contaminated by another substance of a similar nature to veratria, but insoluble in ether, from which it may be separated by treatment with that menstruum, the veratria being left upon its evaporation, of a yellowish color—requiring further purification. The other substance remains in the residue, and may be extracted from it and obtained in the form of a brownish adhesive mass, by the action of strong alcohol. It is somewhat soluble in water, but precipitated from its aqueous solution by muriatic acid. This solution froths considerably when shaken: Sulphuric acid is colored orange yellow by it. Muriatic acid a delicate red. It appears to be a compound of ammonia with one of the organic acids derived from the root. Its medicinal effects were not examined.

"The medicinal properties of the two active principles before alluded to have been tested principally by experiments upon dogs. In this part of the examination I have been very much assisted by Dr. Saml. R. Percy, of New York, who has kindly tried several experiments at my request, and furnished me with a detailed account of them."

These experiments made upon dogs, "indicate a very great similarity in the general therapeutic properties of the alkaloid and the resin. In each of these cases a great increase of the saliva, prolonged emesis, general prostration and reduction of the pulse were produced; and in every case, but one, dilatation of the pupils also. But it will be noticed that this reduction of the pulse was much greater in those cases when the resin had been administered, than in that in which the alkaloid was given. In the former being from 165 to 41; from 144 to 40; and from 140 to 70; while in the latter it was reduced from 150 only to 112. In another instance in which the same alkaloid prepared by Dr. Percy,



by purifying the commercial veratria, was administered in the dose of one-third of a grain, to a dog weighing 25 lbs., the pulse was likewise only moderately reduced, viz: from 132 to 100, the attendant effects being very much the same as those just described.

"Judging from these parallel experiments, and from the fact that the resin exists in very much larger quantity, than the alkaloid, in this drug, it would appear that the sedative action of veratrum viride is due in greater degree to the alcoholic resin it contains than to its veratria.

"I may add that the action of the resin upon the human system produces results very similar to those just described. On the 14th inst., at 5.15 P. M., I took two grains of the alcoholic resin. Pulse 80. At 6.45, its effects were first apparent in slight spasmodic contractions of the muscles of the leg—these soon passed off and were not afterwards noticed. At 7.45, free vomiting began, accompanied with an increased flow of saliva and general perspiration; the vomiting continued at intervals for upwards of an hour, and until considerable bile had been thrown up; and was followed by painful retching: at 8.45, pulse 60—by this time the feeling of warmth had been succeeded by general coldness of the body and loss of strength. At 9.15, pulse 55. At 9.30 fell asleep. The only effects observed in the morning were general weakness, and a somewhat depressed pulse. No tingling of the skin so frequently occasioned by veratria, nor catharsis, was produced.

"The resin thus experimented with is of a soft consistence, and of a mild, oily, though nauseous taste at first, but leaving after some time a somewhat acrid sensation in the fauces. It is of a brownish-black color. It yields to ether its more oily portion, about one-quarter its weight,—the remainder, insoluble in that menstruum, is left of a harder and more friable consistence. In order to remove any suspicion that the medicinal action of the resin was due to a minute quantity of the alkaloid remaining in it, I administered three-quarters of a grain of the residue left after treating the alcoholic resin with ether (which would have removed any veratria if present) to a half-grown cat. Its effects were very similar to those of the alcoholic resin before mentioned, vomiting, dilatation of the pupils, slight spasms of the muscles, slow breathing, and reduction of the pulse from the neighbourhood of 100 to 42, were produced in the course of a few hours.

"The quantity of resin obtained from 1 lb. avoird. of the dried root of veratrum viride may be stated at about 300 grains—of veratria about 30 grains. From its reaction with sulphuric acid, the tinct. iodine test, and a solution of the iodo-hydrargyrate of potassium, I am of the opinion that it may perhaps be an altered form of veratria. I have not succeeded in detecting the presence of sabadilla. The existence of jervia in the filtrate from which the veratria was precipitated, was thought probable from the white precipitate which was produced in it upon the addition of sulphuric acid."—*Proceed. Am. Pharm. Assoc.*, 1862, and *Am. Journ. Pharm.*, Jan. 1863.

*Operation for Compression of the Spinal Cord.*—Dr. H. A. POTTER, of Geneva, N. Y., relates (*American Med. Times*, Jan. 10, 1863) the following case of this:—

"A. M. Salsbury, of Phelps, Ontario County, New York, while engaged in gathering walnuts, in October, 1859, fell from a tree a distance of twenty feet, and fractured certain vertebrae in the inferior cervical region. Three days after the accident I was called in consultation. The patient was perfectly conscious, but was unable to move any part of the body or extremities, except the hands, which he could slightly raise, but which would fall upon reaching a certain point, without the least control of the will over them. Sensation was as imperfect as the motion. The patient being a fleshy man, it was difficult to determine the exact point of injury.

"It was decided I should operate, which I did, October 9, 1859. I found the spinous process of the sixth vertebra fractured and displaced, and the arch of the fifth crushed in upon the spinal cord, nearly separating it longitudinally. With some difficulty I removed all that portion comprised in the lamina and spinous process of the fifth and the spinous process of the sixth cervical ver-

tebræ. The sheath of the spinal cord was entire, but, as before stated, the cord itself was much injured.

"I did not see the patient again until the following January, at which time the wound was nearly healed, and he was as comfortable as could be expected; he could sit in an easy chair, could readily move his head, and could converse as freely as any one. He had gained very little from the operation—sensation and motion being as imperfect as when first injured, except that he could use his left hand a little more freely than before. He remained in this unhappy condition until November 29, 1862, when I was again called to see if something might be done to relieve him. During the past three years there had been some spasmodic action of the lower extremities, and thinking that some compression might still exist—which, from the stout and fleshy condition of the neck, had escaped detection in my first examination—and as the situation of the patient could not be made worse, I determined upon another operation, which was made in the presence and with the assistance of Dr. Dox, of Geneva, and Dr. Carpenter, of Phelps.

"I removed the fourth, sixth, and seventh cervical vertebræ, which left the portion of the spinal cord covered by the four inferior cervical vertebræ entirely exposed. The cord had not united, but at the point of the first operation it was well protected by a thick substance, resembling the coat of a large artery. At least an inch of the superior portion of the exposed part was much flattened and thinned, but the sheath was entire. At the connection of the first dorsal vertebra the cord was full, and, to all appearance, in a normal condition. There was no pulsation at any point exposed, but there had been at the first operation; and, in my judgment, the pulsation of the cord will determine very correctly the diagnosis as to the extent of the injury. In two cases upon which I had previously operated, the cord could not be only felt but the *pulsation could be distinctly seen*. In both cases it was simply the yoking in, as it were, of the arch of the vertebra upon the spinal cord—the cord not being in the least separated. The first case was of five months' standing, and was the most perfect instance of paralysis and loss of sensation I have ever seen. A report of the same may be found in the *Journal of Medicine and Collat. Sciences* for March, 1844. It was, I believe, before the time of chloroform, and sensation returned instantaneously upon removing the compression, and a perfect recovery was effected. The other case I did not report. The patient was a coloured man by the name of Susey. The operation was performed at Geneva, New York. I removed the posterior portion of the three inferior cervical vertebræ, and found the cord had simply been pressed against the body of the spinal column; the cord was not separated, and pulsated freely. I had great hopes of his recovery, but he died the fourth day. An autopsy showed fracture of the left parietal and occipital bone. A large clot of blood was also found around the foramen magnum, which was beyond doubt the cause of his death.

"The last operation upon Mr. Salsbury has as yet proved of no benefit to him, and it probably never will, as nearly all connection with the brain is obliterated.

"There are two points I wish to call the attention of the profession to in connection with this class of injuries. The first is, that, in all cases which have come under my notice, and I have seen eight, *when blood is taken from a vein of the arm it is arterial*. This being true, the change from arterial to venous blood must be dependent upon the cerebro-spinal action of the nervous system, and it is not absolutely necessary for the change to take place in the passage through the system.

"The second point is, that, immediately after the receipt of the injury, the patient begins to lose flesh, and during the first few weeks becomes much emaciated. Arriving at a certain point the recuperative powers of the system seem to rally, and nutrition appears perfect—the patients gain flesh in about the same proportion as it was lost.

"Why is this, and what is the cause of the suspension and restoration of nutrition? My own opinion is, that suspension of nutrition is *in consequence of the loss of the nervous action*.

"But what restores it? It cannot come from its original source, for the cause is not removed, and there is no sensation or motion below the injury, and no direct communication with the brain."



*Extract from the Annual Report of the Surgeon-General, U. S. A.*—"During the past year the health of the troops has been remarkably excellent. No epidemics of any severity have appeared among them, and those diseases which affect men in camp have been kept at a low minimum. Scurvy has been almost entirely prevented, and yellow fever, from which much was feared, has had but few victims. This immunity is due to the excellent hygienic arrangements instituted, and to the cordial manner in which generals in commands have coöperated with the proper authorities.

"In an army of the size of that now maintained by the United States, it was of course to be expected that the absolute number of sick would be very large, and the important battles which have been fought have thrown a large number of wounded on the care of the department. At present the total number under the charge of officers of the medical department is not short of 70,000, and immediately after the battle of Antietam it was over 90,000. That this large number could be provided for without some cases of unnecessary suffering occurring, would perhaps be too much to expect; but I must commend the medical corps, both of the regular and volunteer service, for the faithful and efficient manner in which their duties have been performed. In the discharge of their duties medical officers have been very much aided by the contributions of the people of the country, and by the efficient coöperation of the Sanitary Commission and Relief Associations.

"In addition to providing the sick and wounded with medical attendance and medicines, much has been done by the department in furnishing food, clothing, and comforts of various kinds. From much observation, both at home and abroad, and from the concurrent testimony of distinguished foreign medical officers, I am satisfied that never before were the sick and wounded of an army so well cared for as are those who have suffered for their country in the present rebellion. The hospitals, I take pride in saying, are a credit to the nation.

"Before the several medical boards in session during the year (from July 1st, 1861, to June 30th, 1862), a large number of applicants for appointment in the medical staff of the army were invited by the Secretary of War. Of these, sixty-six candidates duly presented themselves. Thirty-three of this number were approved, and five rejected; the remaining twenty-eight withdrew, one on account of physical disqualification. Before the same boards, eleven assistant surgeons were examined for promotion of whom nine were found qualified, and two not considered as coming up to the standard of merit required. In the examination by these boards, the standard of attainments required for success was much lowered, the Board in New York being ordered to examine two candidates each day for the regular army, while the examination of candidates for the appointment of surgeon of brigade became little more than a farce. Since the 1st of June last, however, the standard of examination has been raised, and the gentlemen now entering the medical staff have been found fully competent to undertake the important trust with which they are charged.

"The breaking out of the rebellion found the United States Army with a medical department arranged for a peace establishment of 15,000 men. Experience soon demonstrated the fact, that, however efficient its officers might be, the organization was such as to ill adapt it to the necessities of a large force in time of war. Partial progress in the right direction was made by Congress in increasing the rank of the surgeon-general, adding a limited inspecting corps, and increasing the number of surgeons, assistant surgeons, medical cadets, and hospital stewards. The department was also placed on a more independent footing, and its whole status elevated. But there are still other measures, which, if adopted, cannot fail to add to the efficiency of the department, and these I desire to urge through you on the attention of Congress.

"First among these is the establishment of a permanent hospital and ambulance corps, composed of men specially enlisted for duty in the medical department, and properly officered, who shall be required to perform the duties of nurses in the hospitals, and to attend to the service of the ambulances in the field. By the establishment of this corps several thousand soldiers, now detached as nurses, cooks, &c., would be returned to duty with their regiments, and the expense now incurred by the necessary employment of contract nurses

obviated. A corps formed upon the basis of two men to each company in service, organized into companies of 100 privates, with one Captain, two Lieutenants, four Sergeants and eight Corporals to each company, would relieve the line of the army from all details for the medical department, and enable the department to render far more efficient services to the sick and wounded than it is capable of affording under the present system. The necessity of such a corps has been recognized in all European armies, and I am able to speak from personal observation of the great advantages to be derived from it.

"I regard an increase of the medical corps, both of the regular and volunteer forces, as absolutely necessary. The law of Congress, approved July 2d, 1862, provides sufficiently, except for cavalry and artillery regiments, for the want of troops in the field, but the service in hospitals has to be filled to a great extent by the employment of contract physicians. I therefore recommend that the medical corps of the regular army be increased by twenty surgeons and forty assistant surgeons, and the staff corps of volunteer medical officers by fifty surgeons and two hundred and fifty assistant surgeons. This last corps now consists of two hundred surgeons and a hundred and twenty assistant surgeons. The cavalry and artillery organization requires medical officers as much as infantry. The omission on the part of Congress should be supplied; a surgeon and two assistant surgeons should be authorized for each regiment of cavalry, and for each regiment of heavy artillery, and an assistant surgeon for each light battery.

"Under the first section of the act of June 30th, 1834, assistant surgeons of the regular army must have served five years before being eligible for promotion as surgeon. On the 1st of November there were but six assistant surgeons in the army who had served five years. The effect of this law will be to prevent the filling of vacancies which may occur in the grade of surgeon, and I therefore recommend that so much of said section as requires assistant surgeons to serve five years as such, before being eligible to Surgeoncies, be repealed.

"The number of medical cadets is altogether too small for the necessities of the service. I therefore recommend that authority be given to appoint as many as may be required, in accordance with existing laws on the subject.

"The institution of a medical inspecting corps has been productive of excellent results. The number of inspectors authorized is, however, too limited to enable the service to be as efficiently performed as is desirable. I therefore recommend that two inspectors general and eight inspectors be added to the present organization. The authorization of an additional assistant surgeon-general would also be a measure of great propriety.

"Considerable progress has been made in the establishment of an army medical museum. The advantages to the service and to science from such an institution cannot be over estimated. I respectfully recommend that a small annual appropriation be made for its benefit.

"An army medical school, in which medical cadets and others seeking admission into the corps, could receive such special instruction as would better fit them for commissions, and which they cannot obtain in the ordinary medical schools, is a great desideratum. Such an institution could be established in connection with any general hospital, with but little if any expense to the United States. A hospital of a more permanent character than any now in this city is, I think, necessary, and will be required for years after the present rebellion has ceased. I therefore recommend that suitable buildings be purchased or erected for that purpose. If this is done, the medical school and museum will be important accessions to it.

"Experience has shown that a most useful class of officers was authorized by the act relative to the medical storekeepers. The number now authorized is too small. They could very properly perform the duties of medical purveyors, now performed by medical officers, and thus officers who have been educated with special reference to service as physicians and surgeons, and who are now acting as medical purveyors, would be enabled to resume their proper duties. I therefore recommend an addition to the medical storekeepers.

"At present the washing of clothes in general hospitals is provided for as follows: One matron is provided for every twenty patients, who receives a com-



pensation of six dollars per month and one ration. Great difficulty is experienced in large general hospitals in procuring a sufficient number of matrons to perform this duty, and I have the honor to propose that, instead of this now unreliable plan, a sum of money equivalent to the pay and allowance of a matron, say twelve dollars for every twenty patients, be monthly allowed to every general hospital, to be appropriated for laundry purposes at the discretion of the surgeon in charge, whether to the payment of matrons or the payment of bills for washing by steam or otherwise.

"The 10th section of the act approved July 17, 1862, gives additional rank to officers of the Adjutant-Generals, Quartermasters, Subsistence, and Inspector Generals Department who are serving on the staff of Commanders of Army Corps. There is, I think, manifest propriety in extending the provisions of this act to the officers of the medical department who may be on duty with such command as medical directors, and I respectfully ask for such extension.

"The Engineer and Ordnance Departments are charged with the erection of buildings which requires special knowledge. The building of hospitals also requires knowledge of a peculiar character, which is not ordinarily possessed by officers out of the medical department. It would, therefore, appear obviously proper that the medical department should be charged with the duty of building the hospitals which it is their duty to administer.

"In the matter of transportation the interests of the service require that the medical department should be independent. Much suffering has been caused by the impossibility of furnishing supplies to the wounded, when those supplies were within a few miles of them in great abundance.

"The establishment of a laboratory, from which the medical department could draw its supplies of chemical and pharmaceutical preparations, similar to that now so successfully carried on by the medical department of the Navy, would be a measure of great utility and economy. I therefore respectfully recommend that authority be given for this purpose.

"In regard to the age at which recruits are received into service a change is imperatively demanded, both for the interests of the army and the welfare of individuals. The minimum is now fixed at eighteen years, and it is not uncommon to find soldiers of sixteen years old. Youths of these ages are not developed, and are not fit to endure the fatigues and privations of military life. They soon break down, become sick, and are thrown upon the hospitals. As a measure of economy I recommend that the service age of recruits be fixed by law at twenty years.

"The present manner of supporting the cartridge-box is productive of hernia or rupture. Many instances in support of this statement have occurred since the commencement of the rebellion, and reports on the subject are frequently received from medical officers. I recommend that, instead of being carried by a belt around the waist, the cartridge-box be supported by a shoulder-strap. This would entirely obviate the evil.

"At the last session of Congress the sum of two millions of dollars was appropriated for the relief of discharged soldiers. I recommend that one million of dollars of this sum be set aside for the establishment of a permanent home for those who have been disabled in their country's service. This measure is one of such importance that I forbear entering into details at this early period. An establishment of the kind, organized upon an approved plan, would be productive of incalculable benefit.

"Soon after my appointment I issued circulars to medical officers, inviting them to co-operate in furnishing materials for a Medical and Surgical History of the Rebellion. A large number of memoirs and reports of great interest to medical science, and military surgery especially, have been collected, and are now being systematically arranged. The greatest interest is felt in this labour by the medical officers of the army and physicians at large.

"The reorganization of the medical department necessitated a new set of regulations for its guidance. Under your orders a board has been in session preparing a new code. Their labours have been very much interfered with by the necessity of detailing them, from time to time, for more imperative duties,

but I expect to be able to submit to you, in a short time, a complete set of regulations for your approval.

"I have deemed it my duty, with your sanction, to visit, from time to time, the hospitals and armies of the eastern portion of the country. I have thus been enabled to make myself acquainted with their sanitary condition and medical wants. I hope, ere long, to be able to extend these inspections to the west.

"A uniform diet table for general hospitals has been prepared with great care, and promises to work advantageously."

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#### OBITUARY NOTICES.

Died, in Louisville, Ky., on the 7th March, 1863, of broncho-pneumonia, complicated with gastric and renal derangement, and attended with fever of the typhoid type, CHARLES W. SHORT, M. D., late Prof. of Materia Medica in the University of Louisville.

Dr. Short was born in Greenfield, Woodford County, Kentucky, October 6, 1794, and was, therefore, in the sixty-ninth year of his age at the period of his death.

Such a man ought not to be allowed to pass from this stage of action without some attempt to appreciate the part he performed in the drama of life. Occupying, for so many years, the honourable and useful position of a public teacher in the medical profession, he necessarily formed a large circle of friends, now scattered over a wide expanse of country, whose hearts will be saddened by the intelligence that his pure and peaceable spirit has winged its flight to another sphere.

Dr. Short took his degree of Doctor of Medicine in the University of Pennsylvania about the year 1815, and began the practice of his profession in Lexington, Kentucky, not far from the place of his birth. He was, however, soon induced to remove to the Green River section of the State, and settled in Hopkinsville, Christian County, where he was, we believe, as successful as a man of his great modesty and retiring habits could have expected. About the year 1825 or 1826, he was appointed to the Chair of Materia Medica and Medical Botany in Transylvania University at Lexington, Kentucky, which opened up to him a path suited to his scientific and literary taste. The medical school of Lexington was, at that time, in the zenith of its renown, and its halls resounded with the polished elocution of Dr. Charles Caldwell, and the fervid declamation of Dr. Daniel Drake, while Dr. Benjamin Winslow Dudley, also a member of the faculty, was the oracle of Western Surgery.

With such colleagues as these Dr. Short quietly and unostentatiously took his stand, and, relinquishing the practice of medicine, for which he had an antipathy, applied himself with industry and zeal to the study which was ever afterwards the business and the pleasure of his life, namely, botany, which he enriched by frequent and lengthy excursions in search of our indigenous plants. He was at this time one of the editors of the *Transylvania Medical Journal*, to which he contributed many valuable papers, embodying the results of his scientific explorations.

After the disruption of the Transylvania Medical School, Dr. Short accepted his favourite chair, for which he was so pre-eminently qualified, in the University of Louisville, and removed to that city in 1838, one year after the organization of its medical school. Here he was again associated with Drs. Caldwell and Drake and other able collaborators, under whom the school rapidly rose to distinction, and attracted larger classes than had ever before been assembled in the Mississippi Valley.

Dr. Short's connection with the Louisville school continued until 1849, when he resigned his professorship and retired to Hayfield, an elegant and tasteful villa five miles from the city. Previous to his retirement he had, by inheritance and his own industry, become possessed of a fortune, which enabled him to enjoy his *otium cum dignitate*, and to furnish, at the same time, a suitable outfit to his children, as they left the paternal mansion, besides responding to the calls of benevolence, both public and private.



No small share of Dr. Short's time, after his retirement to private life, was devoted to the preservation of the dried specimens of plants and flowers, of which he had gathered a large and valuable collection. This was to him a labour of love, and these mute objects of his tender care, embalmed and classified in the herbariums which he has left behind him, long may they be preserved to testify to his patience and gentleness, and skill.

As a lecturer, Dr. Short's style was chaste, concise, and classical, and his manner always grave and dignified. His lectures were always carefully and fully written, and read in the lecture-room with a good voice and correct emphasis. He never made the least attempt at display, nor set a clap-trap in all his life.

As a man, Dr. Short was remarkable for his, we had almost said, fastidious modesty, diffidence, and retiring disposition. This last trait was so strongly marked that a stranger might have deemed him to be an ascetic; but never did a kinder heart beat in human bosom. His heart was indeed always in the right place, and alive to the noblest and most generous impulses. As to his probity, it was as nearly perfect as is possible to fallen humanity. There was never a stain upon his honour, and the breath of calumny never tarnished his name.

H. M.

Died, in Hartford, Connecticut, on the 19th of March, aged sixty-four years, CHARLES HOOKER, M.D., Prof. of Anatomy and Physiology in Medical Institution of Yale College.

In the death of this eminent physician the public of Hartford have met with a great loss. So long had he moved about among them as a physician—a period of forty years—and so active and energetic has he been during all this time in performing the duties of his profession, standing forth as one of the prominent men of this community, that the ties which have bound him to this whole people, in all its grades and classes, are numerous and strong, and now that these ties are suddenly sundered, it is no wonder that the expressions which are upon every one's tongue are—How many will miss him! How great a loss! The events of a physician's life are few, and yet if he be skilful, diligent, and faithful, there is a rich unwritten history left in the hearts of those to whom he has been both the friend and physician in the hours of suffering and bereavement. So it was with our friend. A few lines will suffice to give the main events of his history. He was born in Berlin, in this State, a descendant of that eminent and gifted man who was the leader of the first settlers of Hartford, the Rev. Thomas Hooker. He graduated with honour in Yale College in 1820, in the class of which Pres. Woolsey and Dr. Bacon were members. On graduating, as he afterwards did, from the medical institution of the college, he began practice in this city, and from that time to this he has been known as one of the busiest and most indefatigable men in this community. In 1838 he was appointed to the chair of anatomy and physiology, and the numerous graduates of the medical school can testify to his great skill and energy as a teacher.

The character of Dr. Hooker is not a common one. An independent thinker, his energy prompted him to press his views upon the minds of others, and he therefore made a decided impression upon the principles and practice of his brethren in the profession. No man ever showed more earnestness and assiduity in his calling, and these were just as manifest in his last days, when most men incline to some relaxation of their labours, as they were when the ardour of his youth was upon him. Indeed this ardour never left him, and he never discovered that old age was coming upon him. Faithful and energetic to the last, he exposed himself freely to cold and fatigue, in behalf of some patients in whom he felt a deep interest, even after his sickness had fairly begun, and so he may be said to have died in the very midst of his labours. What we deem to be the grand fact of his professional life, standing out prominent before all others, and written in deep lines upon the hearts of multitudes in this community, is, that he performed his labours for the sick irrespective of reward, for he was just as ready to obey the calls of the poor as those of the rich. The genial and ardent social qualities of Dr. Hooker added much to his influence, and therefore his usefulness, as a physician.

W. H.

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GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,  
MARCH, 1863.

At a Public Commencement, held on the 10th of March, 1863, the degree of DOCTOR OF MEDICINE was conferred on the following gentlemen by the Hon. EDWARD KING, LL. D., President of the Institution; after which a Valedictory Address to the Graduates was delivered by Prof. WALLACE.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Albert, David	Pennsylvania.	Acute Dysentery.
Applegate, Frederick C.	Ohio.	Pustule Maligne.
Barndt, Solomon K.	Pennsylvania.	Fever.
Bauduy, Jerome Keating	Pennsylvania.	{ Erysipelas as connected with Gunshot Wounds.
Beach, William T.	Pennsylvania.	Fractures.
Boyd, George B.	Pennsylvania.	Report of Hospital Cases.
Boughman, George W.	Delaware.	Anatomy of the Eye.
Bradley, John	Pennsylvania.	Fractures.
Brittain, Richard James	Pennsylvania.	{ The Requisites and True Aims of an M. D.
Brown, Richard E.	New Jersey.	Chronic Rheumatism.
Cadwell, Joseph W.	Illinois.	Gunshot Wounds.
Campbell, Thomas F.	Pennsylvania.	Puerperal Fever.
Canfield, Ira D., Jr.	Pennsylvania.	Hydrops.
Clark, Vachal M.	Tennessee.	Typhoid Fever.
Carroll, William	Pennsylvania.	Gonorrhoea.
Clarke, George W.	Nova Scotia.	Medical Physiognomy.
Coles, John W.	New Jersey.	Scorbutus.
Coover, Joseph H.	Pennsylvania.	Phrenology.
Corbit, William B.	Delaware.	Hybridism of Diseases.
Crawford, Cornelius C. V. A.	Pennsylvania.	{ Ovulation the True Sexuality of Woman.
Crosby, James A.	Kentucky.	Typhoid Fever.
Dayton, Samuel W.	Pennsylvania.	Functions of the Spleen.
De Witt, John Wilson	Pennsylvania.	Intermittent Fever.
Donor, William J.	Canada West.	Intermittent Fever.
Dougherty, Matthew C.	Virginia	{ Typhoid Fever of Mountainous Regions.
Eagleson, David S.	Pennsylvania.	Typhoid Fever.
Etter, D. Frank	Pennsylvania.	Gunshot Wounds.
Fawcett, Charles L.	Ohio.	The Doctor.
Foote, Herschel	Pennsylvania.	Enteric Fever.
Ford, William H.	Pennsylvania.	Gunshot Wounds of the Chest.
Free, Jared	Pennsylvania.	Placenta Prævia.
Gale, John Witten	Ohio.	Sporadic Cholera.
Gerry, James, Jr.	Pennsylvania.	Diphtheria.
Griffith, David S.	Pennsylvania.	Diphtheria.
Handrick, Edgar L.	Pennsylvania.	Pneumonia.
Hays, William L.	Maryland.	{ Fever the Result of Perversion of Function.
Huff, Isaac	Pennsylvania.	Typhoid Fever.
Huston, John M.	Pennsylvania.	Diphtheria.
Johnson, Charles M.	New York.	Diphtheria.
Kelly, William R.	Ohio.	Hospital Gangrene.
Lehr, George Y.	Pennsylvania.	Dysentery.
Lightner, Samuel B.	Pennsylvania.	Phthisis Pulmonalis.
Loller, William B.	Ohio.	Scarlatina.



NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Longwill, Robert L.	Pennsylvania.	Gunshot Wounds.
Loper, William F.	New Jersey.	Pyæmia.
Mackey, James W.	Pennsylvania.	Rubeola.
Maines, Robert G.	New Jersey.	Dysentery.
Marshall, Robert C.	Pennsylvania.	Opium.
McCandless, Jas. Newton	Pennsylvania.	Scarlet Fever.
McCandless, Josiah G.	Pennsylvania.	Enteric Fever.
McDonough, James	Pennsylvania.	Inflammation.
Miller, Oliver L.	Pennsylvania.	{ Anatomical Structure of Adam and Eve.
Morrison, John B. G. (M. D.)	Nova Scotia.	Tartar Emetic.
Murphy, Samuel M.	Pennsylvania.	Scarlatina.
Pigott, Charles J.	Pennsylvania.	Enteric Fever.
Pulsifer, Horatio B.	Pennsylvania.	Variola.
Reber, William M.	Pennsylvania.	Typhoid Pneumonia.
Richards, Daniel W.	Pennsylvania.	Inguinal Hernia.
Rittenhouse, George W.	New Jersey.	Inguinal Hernia.
Robinson, Charles	Canada West.	Phthisis.
Sackrider, Charles H. (M. D.)	Michigan.	Extracting Teeth.
Say, Eli J.	Pennsylvania.	Alcoholic Liquors.
Seiler, Robert H.	Pennsylvania.	Gunshot Wounds.
Snively, I. N.	Pennsylvania.	Diphtheria.
Stephenson, Robt. Amasa	Ohio.	Scurvy.
Stewart, William S.	Pennsylvania.	Podophyllin.
Stone, Brinton	Pennsylvania.	Observations on Surgical Injuries.
Stubbs, Charles H.	Pennsylvania.	Acute Rheumatism.
Terry, Henry R.	Pennsylvania.	Dyspepsia.
Townsend, Ellis P.	Pennsylvania.	Variola.
Trumbauer, Henry T.	Pennsylvania.	Acute Pleuritis.
Tuft, Reuben H.	Maryland.	Spasmodic Asthma.
Turnbull, John	Ohio.	Signs of Pregnancy.
Turner, Theophilus H.	New Jersey.	Opium.
Vaill, Charles H.	Connecticut.	Gunshot Wounds.
Way, Walter R.	Pennsylvania.	Camp Fever.
Whitford, Lorenzo D.	Ohio.	Acute Rheumatism.
Wiles, C. Hamer	Ohio.	Inflammation.
Williams, Abraham D.	Ohio.	Dacryocystitis.
Willson, David B.	Pennsylvania.	Humulus Lupulus.
Wilson, Charles P.	Ohio.	Typhoid Fever.
Woods, James M. B.	Canada West.	Influence of Climate on Disease.

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Maryland	2
Nova Scotia	2
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